The Smart Creative
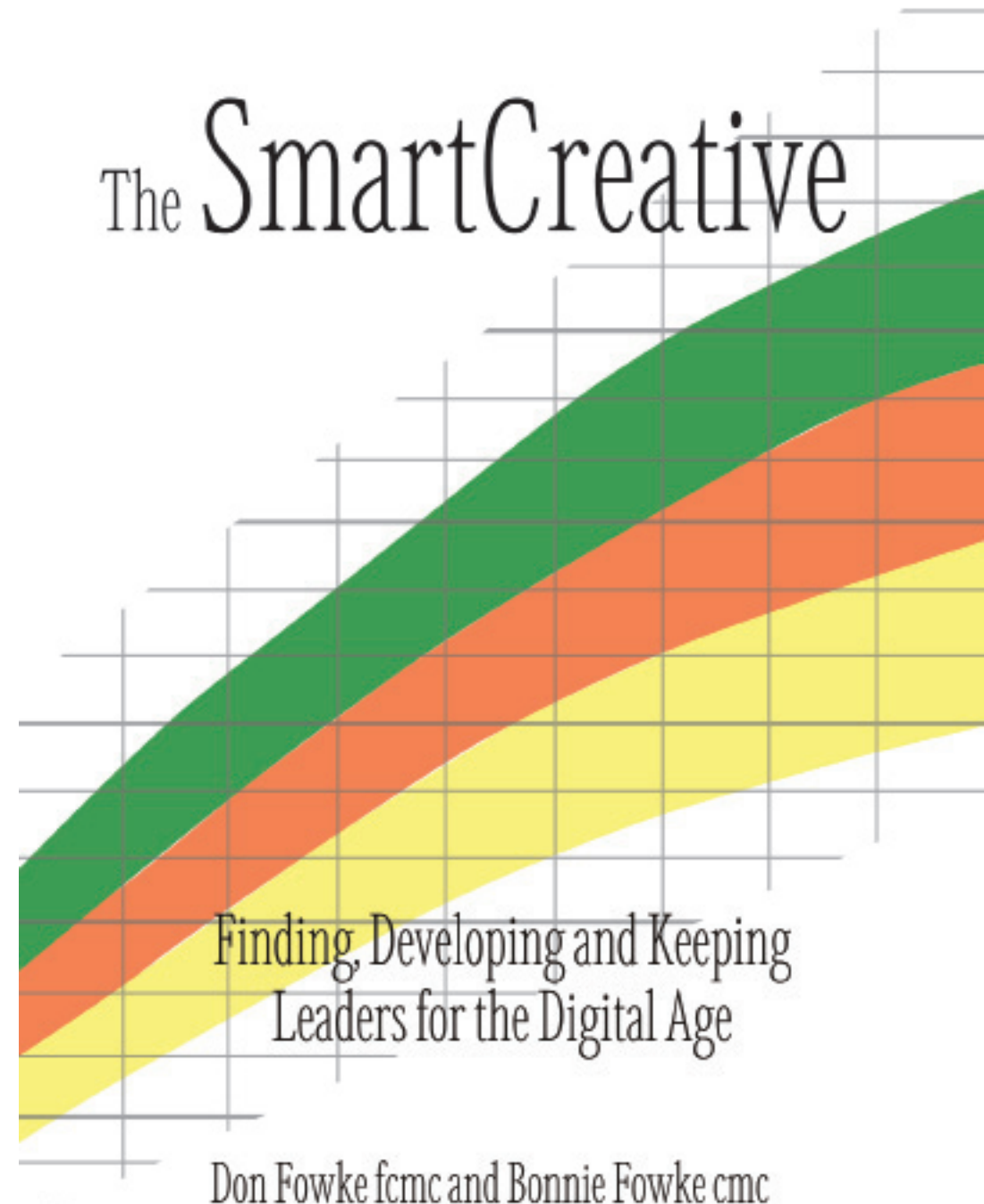## Finding, Developing and Keeping Leaders for the Digital Age

- **Learn** how to identify, develop, challenge and retain the managerial and technical leadership your company needs to succeed in the 21st century.
- **Meet** the smart creative, understand their developmental needs in a way you can be sure to keep them growing, and power your company's growth.
- **This** is human resource strategy at its scientific best. At a time when the brightest programmer, systems engineer, or skilled manager can yield an order of magnitude more productivity than the average, here is the key to unlocking the brain power you need to succeed.

The Authors

Don and Bonnie Fowke are seasoned management consultants. They focus on excellent organization which aligns people with strategy. They serve executives across a broad range of industries. Their deep experience builds on Don's education in industrial management at MIT's Sloan School of Management, and Bonnie's education at The Gestalt Institute of Cleveland. They practice as members of The New Management Network, and live in Toronto.

The SmartCreative

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DEDICATION

To Elliott Jaques (1917 – 2003)

On the 100th anniversary of his birth

2017

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Don and Bonnie Fowke

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FOREWORD

How do we handle the millennials? This question was put to us recently by a senior manager in a global corporation, noting that millennials now make up the bulk of the work force. They seem to need something different in the way of management. The management style so painfully mocked in the comic *Dilbert* does not seem to work well with millenials.

This book argues that companies, firms, not-for-profits, and public sector organizations need a finely articulated talent management strategy. Such is key to ensuring our millennials master the underlying turbulence for the good of us all.

In this book we introduce you to the smart creative, define the smart creative clearly, and show how to identify them, to develop them, and therefore, retain them. Our approach is based on both underlying science and professional evidence.

In doing so we ask that you challenge old assumptions. We ask that you recognize that there are inherent differences

in capability among people; that there is no blank slate nor one size fits all. We ask that you discriminate among people who have different potential development paths. We ask you to be sensitive to the pacing of the steps on those developmental paths. And we ask for openness to relaxing the retirement age.

All of these are in pursuit of getting work done at the right level; one that reflects a differing complexity.

We leave you with an insight into changes in the 21st century work force, which carries an upshift in talent, seen in both millennials and old timers, that promises a new capability to get things done.

Chapter 1

THE SMART CREATIVE

With Joshua Fowke

The watchword today is "smart creative". This is true in Silicon Valley, it is true on Wall Street, and it is true in complex engineering and construction. Indeed, it is true everywhere technology is changing fast. Companies know that the very best recruits out-perform the average by large multiples. They know they need to identify the best, and challenge and develop them in order to keep them.

The smart creative is key to attaining and maintaining competitive advantage as the new millennium gathers momentum. The pace of technological change makes the smart creative a more important factor in success now than ever before.

What is a "smart creative?" The term was coined by Jonathan Rosenberg and Eric Schmidt in their book, *How Google Works*[1]. Basically, a smart creative is an ambitious independent thinker

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1   Eric Schmidt and Jonathan Rosenberg, *How Google Works*, New York, Hachette Book Group, 2014.

who gets things done; one who successfully thinks "out of the box." Smart creatives are high performance problem solvers. They are not afraid to fail, and set high standards for themselves and their co-workers. In short, smart creatives are the very best employees you could hope for; the future stars.

The focus in this book is on the smart creative in management and leadership roles in the modern organization. There are smart creatives heading for careers in medicine, in education, in the arts, in science, in politics, etc. Their paths will differ, but many will eventually find themselves in leadership positions where the patterns explored here will apply directly. Creativity expresses itself in various ways depending on personality, but in the end, the ability to handle complexity is the distinguishing characteristic of the smart creative.

In an organizational setting, the smart creatives are those who will, as they develop, be capable of taking on general management responsibilities, leading business units, being top executives in global corporations, or captains of industry in the broadest sense. Some will be entrepreneurs, developing their own enterprises, others will emerge through the leadership ranks of large organizations. This book will help you to identify smart creatives, establish their current and future capabilities, and nurture their development.

Meet a Smart Creative

A conversation with a smart creative brings these ideas to life. We have a smart creative in our family, our grandson Joshua Fowke. Josh is a third year student in entrepreneurial studies

at the Ted Rogers School of Business at Ryerson University in Toronto. He has been a part of several of our explorations of talent management for the modern company, and so is familiar with the subject area, as well as being a young millennial looking ahead to his own career path.

We asked him to describe the smart creative, as he understands it.

> Well, the common thread seems to be an ability to grasp complex ideas quickly and to be able to see the 'big picture' of a topic. There is also an extremely strong drive to grow, either through learning or experience, that comes from within. As a consequence of these factors a smart creative is likely to follow a non-linear career path, and normally has multiple domains or projects he has an interest in. It is unlikely that their career path is from school into the first job available with the intent of holding onto that job for as long as they can. At my age a smart creative's life might look more like this: building a website, working as an intern, learning about how to train for sports, traveling abroad, reading broadly, deeply self-reflecting and constructing fantasy business ventures; all while managing his undergraduate workload. A smart creative has more than one thing going on in their life.
>
> There is no one 'mould' of a smart creative, but there are some commonalities. The most critical feature of the smart creative seems to be curiosity, a need to learn and think. This shows up as lots of reading, listening to podcasts, debating with peers and

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experimenting or seeking experiences. They seem more willing to change roles, companies and careers compared to other people especially if they feel like they are not learning or developing. Smart creatives require enough freedom and control over their work to be creative or else they lose interest. They also long for peers to talk or work with and are pretty good at intuitively recognizing another smart creative. The ability to recognize another smart creative is easier when the same interests are shared, but it is still strong when there are no overlapping interests. The pair would probably recognize each other as smart creatives through each other's knowledge of a subject and their ability to follow along with a complex topic they are unfamiliar with by asking good questions.

Smart Creatives Hunger for Contact With Other Smart Creatives

Smart creatives gravitate toward each other, they enjoy talking to each other. From my experience, there is a distinct connection among them and conversations feel like they can go on forever. It's hard to describe the connection but you get a sense that the other person really "gets" what you are saying. For example, I notice that when I bring up a point that to other people would be off-topic or irrelevant, they get the connection and bring up an equally off-topic point that ties a number of concepts together, in a similar way that I would have tied them together. It is a sort of chemistry that develops. Even if there

is only a slight overlap in interests, you can feel the chemistry take form as a bunch of different ideas are shared and built upon in a way that allows the conversation to conceptualize a very complex topic or line of reasoning.

Smart Creatives are Looking for a Higher Purpose

Often the flexibility of career outlook carries a search for a higher purpose:

> Smart creatives don't have to know exactly where they are headed, although some of them do have a good sense of their end goal. They have a lot of options to choose from and are likely to pursue a couple of different things over their lifetime. However, there is a drive toward doing something big, which I think stems from seeing the 'big picture'. They are attracted to opportunities that are challenging and impactful.

We asked Joshua to talk with us about his own interests and career expectations going forward:

> I want to be able to grow into a job, and then move on to something more challenging after becoming good at it. The key is development so that I become competent at increasingly complex and impactful roles. In order to have this growth I will need to face new challenges and increasing difficulty. If a company fails to provide these new challenges and the necessary support, then I am going to leave to fulfill

my developmental needs, either through entrepreneurship or at another company. If an organization is going to be attractive to me, they need to provide a developmental path which involves switching between different functional roles, learning new skills and working on different projects, all with a sense of momentum.

We asked Joshua how his own experience might apply to the organizations and their approach to retaining smart creatives:

Such a developmental path allows the smart creative to progressively take on more responsibility, exercise more discretion, and thus have a bigger impact on the organization, project, and society at large. This increased discretion can provide freedom to be creative, but at some point will need to allow the smart creative to strategically change the organization, in part or in whole. It can be extremely difficult for an organization to allow this kind of freedom, which can lead the most promising smart creatives to leave their current company. I argue that an organization that can build the capacity for its smart creatives to spread their wings is more likely to retain these high achievers, and also become an organization that outperforms financially and defies the corporate lifecycle by constantly improving. The average Fortune 500 company only lasts something like thirty years. Maybe by letting your smart creatives be creative, successful companies can have continued success with enough changes to keep up with the changing

world. There is a trade-off between short term efficiency and long term effectiveness, but it will ultimately lead to sustained long term success. It is absolutely imperative to be aware of and develop the necessary culture within the company and have the leaders of the company, particularly the top executives, trained and developed in organization design, management and leadership.

And we asked him to talk personally about his own path:

I took my development into my own hands in high school by starting my own business, mostly out of an interest to learn about business, but also because I wanted the control of my job so I could be creative. I was able to make a profit every year, grow the financials each year and employ about sixteen people. This experience helped me get exposure to operations, management, accounting, sales and marketing, which gave me a good foundation going into university. I have also been lucky to have had access to professional conferences on organization design, a lot of books, and access to experienced businesspeople. I have also done an internship at a sizeable company as a project coordinator. My goal is to learn enough about each of the functions in an organization, so that I can understand the organization as a whole and run an effective organization. Thus, I am looking for opportunities to get a good enough understanding of different roles in the organization, while focusing on design of the

organization itself and the strategy of the firm as
my specialty.

Going forward I am looking for a chance to learn
from others who are further along than me, as well as
to fill roles that help me get better. What is import-
ant to note is that the criteria that I use for deciding
which job to take include many factors aside from
money. I am interested in freedom to develop pro-
fessionally, the right level of challenge, mentorship,
good work relationships, personal growth and most
of all, interesting work. Money is still very important,
I still want to be paid fairly based on how much value
I add to the organization, but in the medium and long
run it cannot make up for an unsatisfactory supply of
other factors. In short, I look for a rewarding job, and
a career where I can reach the peak of my potential.
I would be willing to join a corporation that was de-
velopmental, join a startup, start a company, or join a
think tank or consulting firm. But more importantly,
I would be interested in working across industries and
geography, as long as the opportunity was interesting
and developmental.

He went on the describe how these themes take shape in his
own life:

I'm interested in improving how companies are man-
aged, so that people can reach their full potential at
work and grow as people. I think there is a lot of
room for improvement with the relationship people

have with their employers, as well as the way organizations are designed and what they contribute to society, not just on an economic scale, but as they impact individual's lives. Don't get me wrong; the bottom line is still the main measurement of success, but I hypothesize that if you incorporate some new concepts about how organizations function then the bottom line will grow, along with other positive impacts that such changes would cause. I see myself being able to do that in many ways, either through consulting, through joining companies and helping them develop, through writing, through starting my own companies, or through building a network of people working on the same issues as a sort of think tank. I'm not limited in the avenues to do it. I think there's a better way that people can enjoy work more and get more out of it, and I think businesses can have an even greater impact on society by unlocking the potential of their employees.

It doesn't have to be as much of a trade off between your well-being or the rest of your life and work. The idea that, when I retire, I'll get time to myself or I'm working for someone else, doing something I don't care about, doesn't have to be so common. I think that people should be able to grow to their fullest potential as people, in all aspects of their lives, through work. And so, I think it's a domain for self-improvement. I think that's the main purpose of it, because if you get people being the best that they can be, they end up being able to contribute more to the

economy with better productivity, and not dragging on the economy with health problems. I don't know how I'm going to work on that, but that's the thing that excites me most.

The two core components of feeling fulfilled is knowing you're making some sort of positive impact on others and making progress on a goal that is important to you. That's the essence of meaningful work. And I think it's also meaningful if you feel that you have got other people gaining traction in the same area and it's not just a one-man battle and that you're learning a lot and developing a lot, and being able to forge relationships. If you can set it up right, your workforce doesn't have to just punch a clock, but actually get something out of work other than just the salary.

Young Smart Creatives Value Development Over Security

On the question of what the smart creative is looking for in an employer, Joshua said:

I'm really skeptical of a lot of organizations, just because of my few run-ins with bigger organizations. They seem to talk a lot more than they do, so they're a really hard sell to me. Part of the appeal of a startup or a smaller company is that you can more easily see what they are really made of. A really interesting company to me would be really flexible in terms of

what you do with your time, and instead would be interested in your output and your thinking and your decision-making. The company would also be interested in developing you as a professional and as a person, and have a culture that lets you improve and forge relationships with exceptional peers. The organization as a whole would also be doing something really cool and solving worthwhile problems while giving me an opportunity to do interesting work on projects that would be good for my development. Add in the safety of a paycheck that reflects my contributions to the company and you have an organization that I would love to work for. A lot of people say 'we're going to do this and give you these opportunities' and they don't. I don't know how many companies out there are actually very good at running an operation that is that attractive for smart creatives, which is part of the draw that entrepreneurship has to me, because I would have more control over those issues.

People don't want the same thing from organizations as they used to, when many of the traditional ones were created. Those big organizations provided security in the form of a career and steady paycheck. When you get married at 20, 21 and you have a kid, your choices in life and your attention is more focused on security. From a Maslow perspective, security was the most-pressing need, so organizations said we can pay you money, consistently, and we'll give you a career. Well, I think that now people aren't as

worried about security because they are not expecting
to get married in their 20s. I see a world with a lot
of opportunities, so you better be meeting my needs.
The ability to forge really good relationships and feel
valued and the ability to then work your way up to
doing something really meaningful, in a self-actualiza-
tion way, is the selling point now.

Team Sports Have Insight into the Deliberately Developmental Organization

Joshua has long been a student of hockey and an admirer of
the Detroit Red Wing's approach to the development of star
performers from hockey's equivalent of the smart creative.
He describes it this way:

> In order for a team to be successful in the NHL, they
> must find talent in the draft, because that's the only
> place to get really good talent, and then they must de-
> velop that talent; and if they mess up on either of those
> two things, they can't enjoy long term success. So you
> have to be able to identify people, based not only on
> their skills, but more importantly on the character of the
> person and on their ability to learn. You're taking raw
> talent at a young age, where they're not going to step
> in and play right now, and they're not ready right now,
> and they may not be good right now, but you are bring
> people into your organization that you think could be
> good at some point. And then it's your job to figure out
> what they need and help them along their path. And
> if you create an organization where the focus of the

organization is to draft and develop talent or personnel, you're going to have a successful organization.

I look at the Red Wings for that and year after year after year, they have the great prospects coming up the ranks, every time, even if they have lower draft picks. It's their ability to develop and find character that is the difference. And there're a couple other teams that do that well but the Red Wings were definitely one of the pioneers of this model.

It's about identifying raw potential with the ability to learn, and then being able to facilitate their development of whatever skills and maturity they need. The Red Wings staff talk about turning their prospects into men. If you're able to identify the people that you think have the potential to fill a role for the organization, you identify those people and then you give them what they need to progress and become competent in that role.

If you look at hockey, at the NHL level, there's security in it, there's money in it, but most of them are there to win and because they like playing. And it's the most difficult major sports trophy to win because it's just 82 games, and you never know who's going to make it. It's a league approaching parity, with a very slim difference among teams. Anyone can win on any night. It's not like the NBA where you can completely control the game by just getting a superstar or two, which can change your whole team. On the other end of the scale, with football, American football, there are a couple positions

that make a big difference, but there are many positions that have a very small impact on the outcome of the game. In hockey you're in a team where everyone has to do something and everyone has an impact. And so, you go through 82 games and then 2 months of playoffs, and every other night, you get physically beat up. Bergeron came out after a Stanley Cup final series, which he ended up losing, with a cartilage tear in his rib, a punctured lung and a separated shoulder and he kept playing because he wanted to win. At that stage of the season, everyone is beat up in some way, but the pure emotion of winning overrides the pain. It fills a higher need for those people, one of success, and teamwork, and I would argue it's approaching self-actualization. In hockey it depends on the 20 guys who are dressed because they all make a difference. If you're on the ice enough, you're engaged in the game and sacrificing yourself and pushing yourself for the success of the team. In the NBA, there are really eight to ten players on a team, if you include the main bench guys, and if you have LeBron, you've got a good team. But if you have a hockey team and you only have Crosby, you could still miss the playoffs.

Culture is Key to the Developmental Environment

Organization culture is a big item for Joshua, and he is looking for a culture that will help him grow:

I don't like feeling like it's a top down organization and that I'm told here's what you're going to do and

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it's going be really hard, and I'm going to be yelled at for mistakes. I've always responded a lot better to being a partner in the situation, at some level, even if I'm not the one calling all the shots. If a coach yells at me after I make a mistake, that's not going to help me. I know I made a mistake. Or if I don't know I made a mistake, you can tell me, but I'm trying to get better, so I don't need you to yell at me so that I get better, because it's just not going to help. If don't feel respected I just say, 'I can go do something else, somewhere else.' I need a much more collaborative relationship where we are both trying to improve me. Now, there has to be accountability and there has to be an ability to call me out or challenge me, that's perfectly fine, I'm open to criticism. I just think it takes a much more masterful and skilled way of doing that through a very meaningful relationship.

For me the challenge at work would be first and foremost the type of work itself, but I think that it's also paramount that my co-workers help me to foster my development in all aspects, in addition to meeting the project's needs. It's the relationships that really challenge you because they can make or break what the job is itself. You could be doing the most meaningful work, but if everyone's fighting about it, it's crappy and you don't feel you're doing well, and everyone's on a different page, and no one is working toward a common goal, there's no point. You could improve the experience of a crappy

project a lot by getting the soft stuff right, and it might even be better than having a dysfunctional culture and a fun project. If you get the culture and soft stuff right then there is less internal frictions and people can focus more energy on company goals and getting better.

If you're able to create a pursuit of excellence and role-model it, and create habits and practices around that, every day at work, it fosters an environment where everyone is growing and they're developing and they're learning on their own. Managers also foster such a culture by giving people input and recognition, working as partners with their subordinates and holding people accountable.

I think that's the ability of a really good leader, to recognize the contributions of everyone and help them get better. Generally, people know where they are and want to get better.

Startups Are Attractive to the Smart Creative

On the attractiveness of a startup, Joshua had this to say:

The interesting piece for me, at my age, is to be one of the founders of a startup, with impressive people. My message would be a focus on learning and development, the opportunity to work together with a lot of minds who are interested in doing bigger things. So it's an opportunity to say,

'hey look, here's a bunch of peers that you might not have been able to find in the rest of your life that are interested in working on something, and it's something that's flexible enough that you're not tied down for the rest of your life. You're not even tied down to one specific function that you're doing here, and we really get to shape something.' If I find something that has big growth potential and interesting possibilities itself that could branch off into other businesses, or has a lot of scaling ability, that would be something fun to pursue.

And then if I had a company that was starting to grow that had a lot of people in it, that's when I think the real interesting work is. How do you keep the development and the culture of a smaller company and the stuff that they do well, in terms of staying nimble and innovative. When the company grows and the people who are coming in are not part of the founding staff, that's where managers become so important. You don't have to worry about that as much when you are starting out. You work on your coaching and your mentoring and your team-building. When you're in a small group you know everyone. But once you get a lot of new people coming in where you're not going to be the one interacting every day with everyone, that's when you really have to figure out how to keep the company glued together by really strong managers who coach, mentor, and execute, so that the culture of excellence stays alive through the organization.

> And you sort of multiply your own leadership ability down through the organization.

How Can We Make Use of These Insights?

Josh has told us that he values relationships, the ability to flex his own creativity, freedom to exercise discretion, and meaningful, helpful mentoring. He wants interesting work with positive social impact. Money alone will not motivate him; he hungers for challenge and meaning.

The rest of this book is devoted to identifying and developing smart creatives.

Chapter 2

DEVELOPING

THE SMART CREATIVE

Development is the critical variable in attracting and retaining the smart creative. This chapter explores what such development is really all about. It shows how to design and implement a talent management strategy in a focused and precise way, so that a company's probability of building a superior leadership cadre is enhanced.

Organizations that have identified specific levels of complexity in their various managerial and professional roles can benefit from a purposeful strategy for developing executive talent based on the material presented here. This material should be of particular interest to Chief People Officers of a modern company as well as to executives who mentor high potential employees; especially those who have Manager-once-Removed accountabilities in a Requisite Organization structure, as presented by Elliott Jaques. It can also provide important insights for high potential employees in laying out the broad strokes of a career strategy.

Companies organized according to Requisite Organization principles are stratified according to the complexity of the managerial roles, from Stratum II in front line managers to CEO leadership at Stratum V or higher. A major corporation would be a Stratum VII company, which would think of the roles of General Managers (Stratum IV), business unit heads (Stratum V), Corporate EVPs (Stratum VI), and CEO (Stratum VII) in terms of their operational Stratum. Our definition of The Smart Creative is one who will have the capacity to fill one or more of these roles at some point in their career.
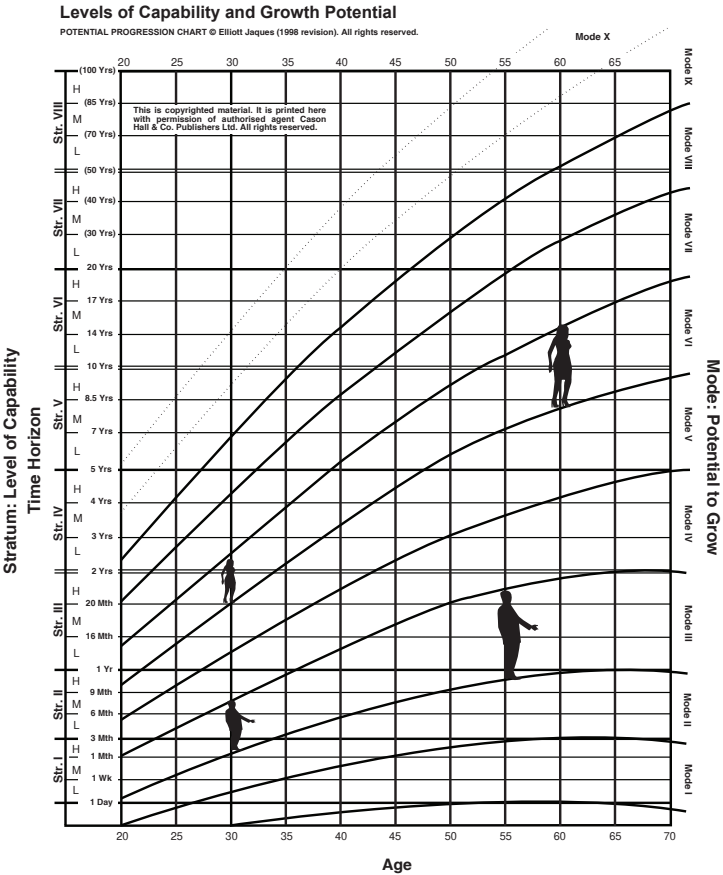
Two key ideas are central to this approach. The first is the understanding that managerial levels have a logical and scientifically based structure, which reflect clearly identifiable differences in the complexity of the managerial role at each level. Each of these levels is known as a *Stratum*. The second key idea is that individuals have identifiable paths of potential growth in their capability to manage complexity. These paths of potential development are known as *Mode*.

The interplay between Stratum and Mode paths are suggested in Elliott Jaques' seminal chart in Exhibit 2-1, where the 30 year old woman in transition from Stratum III to Stratum IV is shown to grow in her potential to be able to work at Stratum VI in her 60's. Her potential path of development is in the arc of Mode VI.

These ideas are explored more fully in the following pages to articulate a clear strategy for developing the smart creative.

The data accumulated in Elliott Jaques longitudinal studies on pay progression, work complexity progression and human potential progression, which began in the 1950s,

Exhibit 2-1: How Potential Grows With Age

Levels of Capability and Growth Potential

POTENTIAL PROGRESSION CHART © Elliott Jaques (1998 revision). All rights reserved.

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gradually led to a set of unified progression curves in 1963. Jaques continued such studies and data-derived revisions over the decades which led up to the Potential Progression Chart (1998 revision) presented here in Exhibit 2-1. These curves show the probable developmental paths of those with executive potential as Mode IV, Mode V, Mode VI and Mode VII, as well as Mode VIII individuals, who have the potential to lead a global corporation. Today, these Modes IV through VIII make up about 10% of the adult population, with approximately 7% at Mode IV and all the others totaling some 3%. This small fraction of an organization's work force holds the future leadership.

The Jaques Curves

The Jaques curves are a subset of his hypothesis of lifetime maturation of potential capability, depicted in Exhibit 2-2.[2] Mode IV is the top end of what he called 3rd Order Ordinary Mortals. Mode V, VI and VII are 4th Order Exceptional Mortals. Beyond that are 5th and 6th order, of which the latter are true genius.

Owen Jacobs, who worked with Jaques on US Army studies of the potential of colonels to become general officers, describes the curves as follows;

> *"They were generated from analysis of income progression. One way of interpreting these data are that the income progression reflects progression of ability to create value for the employer and that the*

2   Elliott Jaques, *The Life and Behavior of Living Organisms: A General Theory,* Westport CT, Praeger, 2002.

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EXHIBIT 2-2: Orders of Potential

Figure 6.1
Hypothesis of Lifetime Maturation of Potential Capability
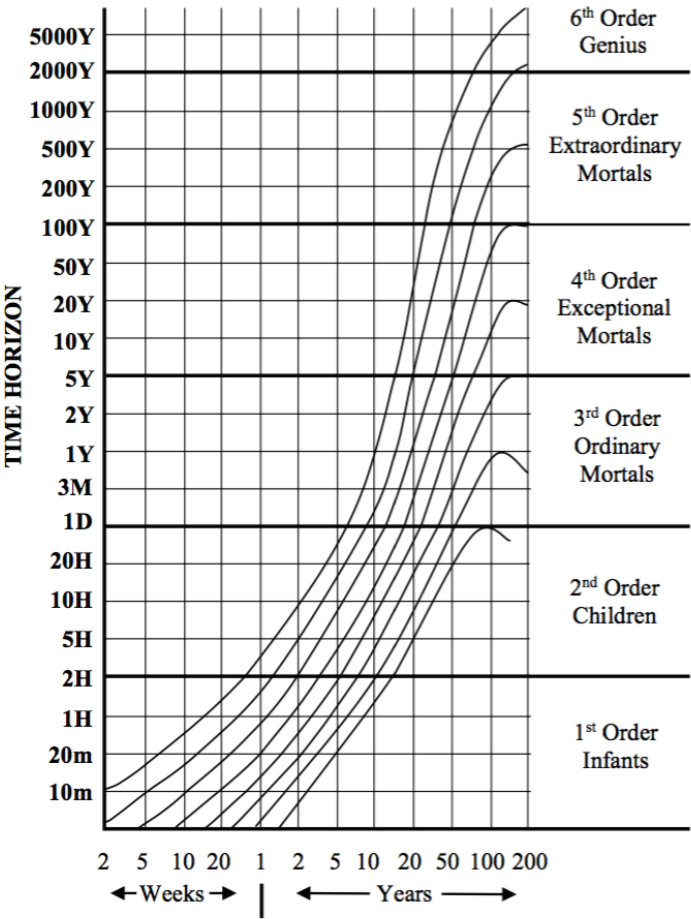
"employer has sufficiently accurate measures of value creation. One can argue with both assumptions, but within reason cannot deny the curves for what they are. If we can also assume that these progressions occur on average….we then say the curves are probabilistic reflections of different rates at which people can grow their capacity to create value in successively more important organizational roles. The curves then are a tool for predicting future growth based on past growth rate. Not entirely a foreign concept.[3]"

Jaques saw the curves as independent of developmental efforts;

"This maturation process is unlikely to be able to be speeded up or enhanced by special educational procedures or occupational opportunities, nor impeded by the less favorable social, educational, and occupational opportunities faced by many minorities, since such opportunities or their absence are far less important for individual maturation in potential capability than the problems that have to be solved by living in our everyday lives.[4]"

From this point of view, development is about realizing individual potential. As capability grows, the individual needs to acquire the skilled knowledge and experience required by the roles he or she may fill. It is also necessary that the individual value the work; that is, be motivated to be fully engaged in its pursuit. Seriously "disruptive personal characteristics" may detract from one's ability to realize their productive potential.

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3   Correspondence.
4   Elliot Jaques and Kathryn Cason, *Human Capability: Study of Individual Potential and its Applications,* Falls Church VA, Cason Hall, 1994.

Transformational Passages in Personal Development

The smoothness of the curves notwithstanding, the path of development is spasmodic. There are major transformation passages where perspective and capability shift dramatically and a new level of world view and capacity for information processing emerges. The transitions may take several years of reaching for the higher level, then falling back on familiar ways of working through problems, until gradually the new stratum is internalized.

For the potential Mode IV to VII executives, the first transition is from Stratum II capability to Stratum III capability. In Jaques' terms, this is the transition from being able to manage in a 12-month time frame to one longer than 12 months. It means a shift in processing from a cumulative one, where a conclusion is the sum of all the factors in play, to a serial one, where the cause of the cause can be seen and the necessary sequence of events devised to bring a more complex problem to completion. This shift from Stratum II capability to Stratum III capability takes place at different ages. The eventual Mode IV individual will make this transition sometime between when they are 27 and 35 years of age. The Mode V individual will do so sometime between the age of 22 and 27. These transitions in organizations are often marked as moving from a front line manager role, with direct reports, to a manager of managers role, or middle manager.

For the Mode VI individual the transition takes place in the period between ages 16 and 20, long before they have much

if any experience in a managerial role. For the Mode VII individual, the transition takes place between the ages of 13 and 16. Jaques estimated that the transition to Stratum III took place between the ages of 5 and 10 for Mozart for him to be able to handle the complexity of the compositions he created, but Mozart was a genuine genius.

The important thing to see in this is the very different needs for developmental support among those with executive potential, depending on their Mode path. This is about "managing the turns" from one Stratum to another.[5] Mode IV and V will likely get experience and training in managing people in their Stratum II roles before they transition into Stratum III capability, whereas those on Mode paths V and VI will make this transition while still in school. Even those in business programs will find that faculties tend not to understand management, and do not teach it. As a result, many of the high mode young people will find themselves in Stratum III roles without skilled knowledge and experience in this most basic area of management, a deficiency that will impair their effectiveness throughout their careers.

The transitions from one Stratum capability to the next involve a substantial reorganization of the way a person solves problems. Moving from Stratum II capability to Stratum III capability is a move from cumulative processing to serial processing, and a shift in time span from one year to up to two years. The move from Stratum III capability to Stratum IV capability is a move from serial processing to

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5   Ram Charan, Stephan Drotter, James Noel, *The Leadership Pipeline: How to Build a Leadership-Powered Company,* Jossey-Bass, 2001.

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parallel processing, balancing multiple interacting serials, and a shift in time span from up to or over two years.

These shifts are sometimes thought of as merely a change in mental capability, which they are in part. But to be fully realized, these shifts are much more. They are also a change in emotional and intuitive capability encompassed in a psychological reorganization. The result is a new ability to encompass complexity and manage it in a more comprehensive way. Said another way, the shift from one Stratum capability to the next is first and foremost a shift in cognitive capability. To be fully effective at the next higher level, there has to be a shift in maturity as well. To understand this better it is helpful to look at contemporary thinking in adult development.
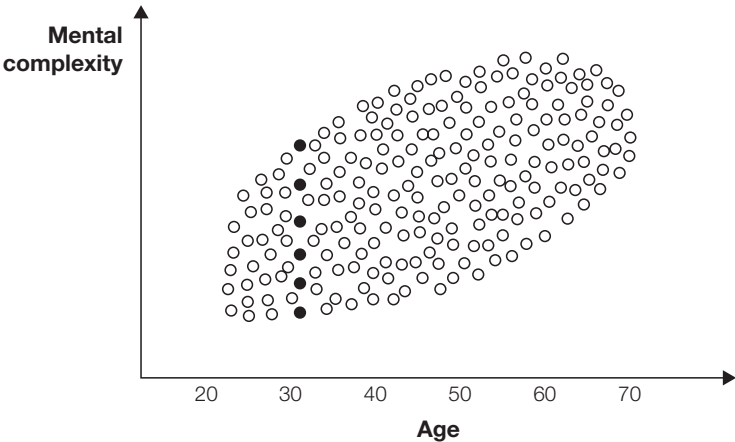
Plateaus in Adult Psychological Development

In their 2016 *An Everyone Culture*[6] Robert Kegan and Lisa Laskow Lahey note that until recently adult psychological development was thought to mature in one's late 20's when the physiological structure of the brain was assumed to be complete. Today, a growth in mental complexity is seen as continuing throughout one's lifetime, as indicated in Exhibit 2-3. Kegan and Lahey go on to identify three plateaus in adult mental development, as shown in Exhibit 2-4; the Socialized mind, the Self-authoring mind, and the Self-transforming mind. The authors note that most adults develop through the socialized mind to the self-authoring mind. A smaller fraction
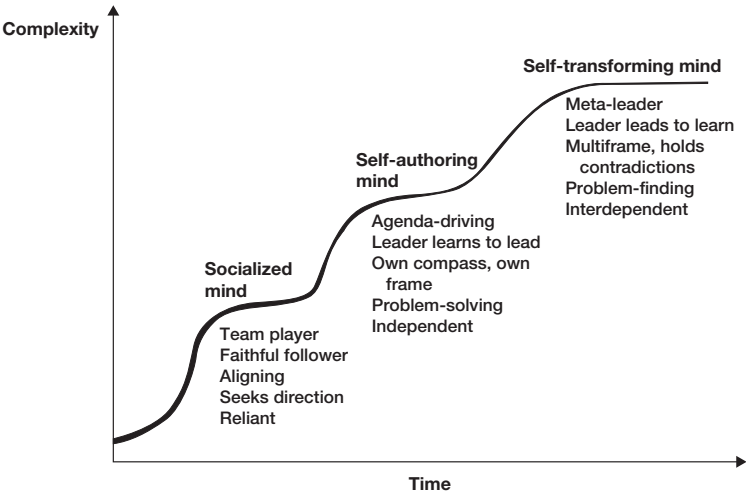
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6   Robert Kegan and Lisa Laskow Lahey, *An Everyone Culture: Becoming a Deliberately Developmental Organization,* Boston, Harvard Business Review Press, 2016.

EXHIBIT 2-3: Age and Mental Complexity; The Revised View Today

EXHIBIT 2-4: Three Plateaus in Adult Mental Development

develop further to the self-transforming mind. While there has been no research done to relate the Jaques and Kegan *et al* transitions, our hypothesis is that these three plateaus correspond to shifts in information processing capability that occur when an individual matures into Strata II, III and IV potential capability. More precisely, we propose that balanced cognitive, emotional and social development should seek a synchronization of these transformations. In other words, while cognitive potential may grow automatically with age, the emotional and social maturity implied by the Kegan-Lahey transformations may or may not take place at the same time. While the readiness for coordinated development may be there, its realization can be assisted and supported by developmental efforts. Some of these happen naturally in the working and living environment surrounding the individual; others may be assisted by developmental supports sought out by the individual or strategically provided by the organization.

Developmental supports should aim at aligning emotional and social maturity with cognitive maturity.

Kegan and Lahey describe these three developmental plateaus as follows:[7]

> **"The socialized mind**
>
> - *We are shaped by the definitions and expectations of our personal environment.*

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7   *Ibid.*

- *Our self coheres by its alignment with, and loyalty to, that with which it identifies.*

- *This sense of self can express itself primarily in our relationships with people, with schools of thought (our ideas and beliefs), or both.*

"The self-authoring mind

- *We are able to step back enough from the social environment to generate an internal seat of judgment, or personal authority, that evaluates and makes choices about external expectations.*

- *Our self coheres by its alignment with its own belief system, ideology, or personal code; by its ability to self-direct, take stands, set limits, and create and regulate its boundaries on behalf of its own voice.*

"The self-transforming mind

- *We can step back from and reflect on the limits of our own ideology or personal authority; see that any one system or self-organization is in some way partial or incomplete; be friendlier toward contradiction and opposites; seek to hold on to multiple systems rather than project all except one onto the other.*

- *Our self coheres through its ability not to confuse internal consistency with wholeness or completeness, and through its alignment with the dialectic rather than either pole."*

Successful navigation of these plateaus of mental development imply both cognitive capability and emotional maturity. Without appropriate support, cognitive and emotional maturity may not proceed at the same pace.

Transition from Stratum II to Stratum III Capability

Robert Kegan's 1982 book *The Evolving Self*[8] articulates the transformative nature of the maturation from one stage to the next. Psychologically, it is seen as a process of making what has been subjective into an externalized object, then integrating that newly created object into a new, more encompassing world view. The individual capable at Stratum II may be embedded in a management process, such as accounting, supply chain, or design or production; acting as a trouble shooter, accumulating factors within the process to solve problems in order to keep that management process moving. In the transition to Stratum III capability, the individual shifts perspective from being embedded in the process to one where the process itself is seen as an object at arms length, an object that can be redefined to meeting changing objectives. The subject has become object, and integrated into a new world view. The time span needed to manage this new complexity extends beyond one year, eventually to as much as two years. Integration of this new world view and mastery of its management constitute the plateau.

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8   Robert Kegan, *The Evolving Self: Problem and Process in Human Development,* Cambridge MA, Harvard University Press, 1982.

Transition from Stratum III to Stratum IV Capability

In the transformation from Stratum III to Stratum IV capability the individual shifts from being embedded in the orchestration of an individual serial process, such as an accounting system, a production process, or a supply chain system, to a new perspective where that individual system is but one of several systems to be balanced one against another in a coordinated way to make a business model function effectively. The individual system has become an object to be integrated into a more complex system of trade-offs and feedback loops. The time span needed to manage this new complexity extends now beyond two years, and eventually to as much as five.

The above developmental transformations are common to all of the Mode paths IV – VII executive talent we are concerned with here. What is different among them is the age at which the transformation occurs, with consequently differing needs for support to ensure that the transformation is successfully accompanied by the necessary skilled knowledge and experience, aligns values with the work to be done, and is not impaired by psychological factors that might be blocks to success.

Transition from Stratum IV to Stratum V Capability

Here, the executive embedded in the business model at Stratum IV, shifts his world view to see the business model as an object to be manipulated and reshaped. Integration

involves seeing alternative business models as potential ways of achieving strategic objectives, and managing the transition from one model to a preferred alternative. The time span to manage this new complexity extends beyond five years to eventually as much as ten.

**Transition from Stratum V to Stratum VI Capability**

Here the executive shifts from being embedded in strategy for a business unit to seeing business units as components of a portfolio which, taken together, add up to a new strategic positioning for the group. Integration involves conceiving and executing a strategy for the group, dealing with the businesses in the context of the external and international environment. The time span to manage this new level of complexity extends beyond ten years to eventually as much as twenty.

Transition from Stratum VI to Stratum VII Capability

Here the executive shifts from being embedded in the portfolio to seeing the portfolio as a set of building blocks to shape into a serial sequence of capability, one building on the next and dependent on one another, to transform global markets. The time span to manage this new level of complexity extends beyond twenty years. Eventually to a fifty year, multi-generational reach.

The red lines in Exhibit 2-5 show when these several transitions take place in the natural development path of potential for high Mode individuals in Mode IV through VII.

THE SMART CREATIVE

Exhibit 2-5: Transformations
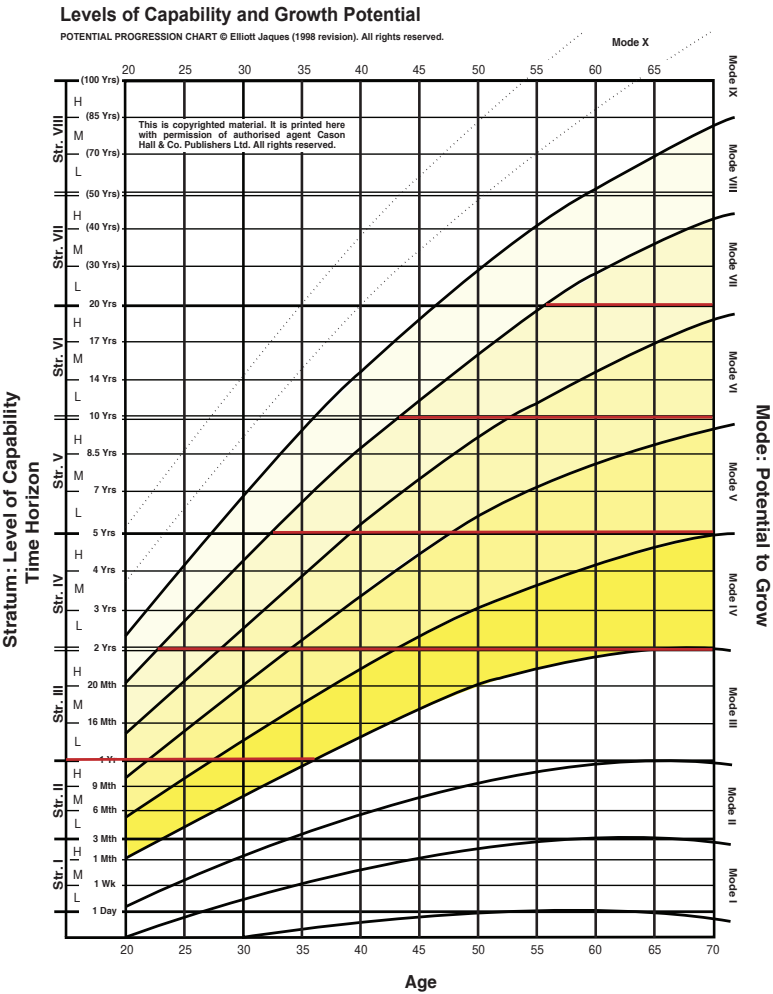
Levels of Capability and Growth Potential

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Awareness as a Component of Purposeful Judgement

Elliott Jaques was clear that the capacity he described was about the whole organism and its ability to make purposeful choices in the pursuit of work. By "work" he meant making the judgements necessary to achieve goals;

> "…*a central feature of the nature of work that defines life is that it depends on making choices and decisions, but the processes of decision making and choice making are ineffable, in the dictionary sense of being incapable of being expressed or described. You can observe the outcomes of the process, but you cannot directly observe the process itself.*[9]"

The managerial and professional judgements that are implied in addressing the complexity at each Stratum are often thought of as cognitive alone, but they involve the whole organism or whole executive, and are shaped by his or her emotional and social maturity. They can also be shaped by enhanced awareness – awareness of one's own internal processes and awareness of others and of the broadest influences in the environment. Jaques noted that;

> "…*the ineffable quality of organical work and decision making [suggests] that the altered states of consciousness 'beyond words,' sought in the contemplation and meditation associated with Eastern*

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9 Elliott Jaques, *The Life and Behavior of Living Organisms: A General Theory*, Westport CT, Praeger, 2002.

philosophy, is an attempt to get down into contact with this ineffable organical work process that is at the heart of all life.[10]"

There is an expanding body of literature and practice that seeks to expand awareness. In a practical vein, such expanded awareness improves mental clarity, reduces stress, and assists in integrating unconscious thought. Foremost here are meditation and mindfulness as practices in organizations, and Gestalt practice in organizational and therapeutic settings.

Expanded awareness also has the potential to improve intuition, and thereby sharpen decision-making, especially under conditions of increased complexity. With practice in expanding awareness the individual learns to distinguish between genuine intuitive insights and projection of internal stories. Expanded awareness has more payoff potential in higher Mode individuals and at higher Strata because of the impact such individuals may have because of the roles they fill.

Ken Wilbur has explored extensively the various aspects of "growth hierarchies," including Spiral Dynamics. It is not clear how these world views or memes relate, Stratum by Stratum, to the developmental transformations discussed here.[11] There does seem to be a likelihood that integral, holistic, or second tier, stages of development are important to people on high Mode paths. This is because second tier memes are reflective of the integrative thinking seen at Mode path VI and higher, and provide high Mode leaders with a way of pulling world views together in an organization. Importantly, this

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10   *Ibid*.
11   Ken Wilbur, *A Theory of Everything,* Shambhala, Boston, 2000.

EXHIBIT 2-6: Components of Purposeful Judgment

"Organical goal-directed work"
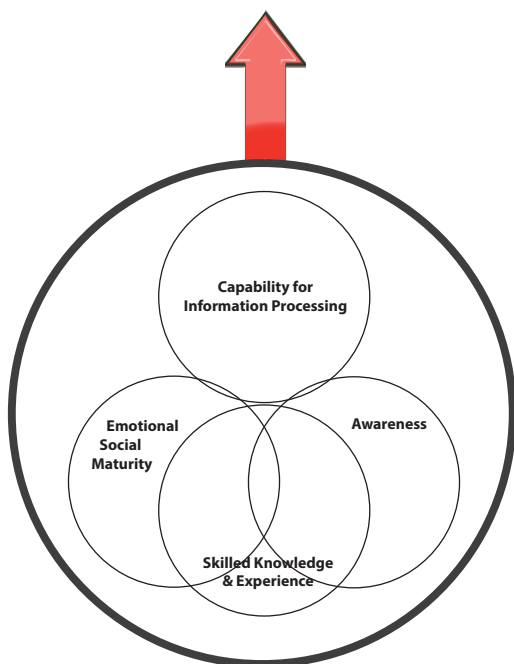
body of knowledge is also proving to be a key to integrating organizational culture into organization development.[12]

The point of all of this is that work to expand awareness is an integral part of the developmental strategy for the high mode individual, as suggested in Exhibit 2-6.

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12   Richard Barrett, *The New Leadership Paradigm,* 2010.

EXHIBIT 2- 7: Age Thresholds for Transformation of Executives

AGE THRESHOLDS FOR TRANSFORMATION OF EXECUTIVES

	AGE WHEN TRANSFORMATION HAPPENS, BY MODE			
MODE▶	IV	V	VI	VII
CAPABILITY FOR INFORMATION PROCESSING	LOW	MEDIUM	HIGH	VERY HIGH
Stratum III: 3rd Order Information; Serial Processing; Systematic Provision Work; Max Time Span: 2 yr	27 - 35 yr	22 - 27 yr	18 - 22yr	14 - 18 yr
Stratum IV: 3rd Order Information; Parallel/Systems Processing; Comprehensive Provision Work; Max Time Span: 5 yr	43 - 65 yr	34 - 43 yr	28 - 34 yr	23 - 28 yr
Stratum V: 4th Order Information; Declarative Processing; Field Coverage Work; Max Time Span: 10 yr, etc		48 - 70 yr	39 - 48 yr	32 - 39 yr
Stratum VI: 4th Order Information; Cumulative Processing; Meta-Field Coverage Work: Max Time Span 20 yr			53 - 73 yr	43 - 53 yr
Stratum VII: 4th Order Information; Meta-Field Integrating Work: Serial Processing; Max Time Span 50 yr				56 - 74 yr

Exhibit 2-7 summarizes the transitions that will be experienced on each of the Mode IV, V, VI and VII paths. From a developmental point of view, each individual needs to be supported in two ways so that the potential at each successive stratum is realized:

- Appropriate skilled knowledge and experience need to be acquired.

- Maturation, meaning a new integration of both cognitive and emotional capability, needs to be facilitated.

Developmental Support

The following suggests practical steps that may be taken to provide developmental support for each of the executive Modes from IV to VII at each phase of development. What is proposed here is different from a "one size fits all" approach to development. It recognizes that there are very clear differences between the developmental needs of smart creatives and other employees, and it recognizes that there are very important differences among the modes of smart creatives in terms of content, and especially in terms of timing. The steps outlined in the following pages could be the key to keeping and moulding the smart creatives, and helping them understand the capabilities and behaviors needed for the roles they can ultimately play.

Each of the tables on the following pages suggests specific items of support to satisfy the key developmental needs at that transition.

Mode Path IV: the Future General Manager, Business Unit VP

This individual will make the transition to Stratum III capability somewhere between age 27 and 35. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of Complexity	X	X	X
Training in managerial practices	X	X	X
Promotion to middle management role	X	X	
Advanced professional training	X		
Stratum Peer group	X	X	
Coaching by manager	X	X	
Manager once removed mentoring*	X	X	
Mindfulness			X
Interpersonal skills training		X	X

*The manager's manager

Mode Path IV: the Future General Manager, Business Unit VP - Continued

He or she will make the transition to Stratum IV capability somewhere between age 43 and 65. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right Level of Complexity	X	X	X
General management assignment	X	X	
TEC/Visage style program*	X	X	
Executive education	X		
Coaching by manager	X	X	
Manager once removed mentoring**	X	X	
Executive coaching	X	X	X
Esalen***			X
Meditation			X
Volunteer leadership	X	X	X

*Confidential peer group for education and idea exchange

**The manager's manager

*** Retreat Centre for humanistic psychology, gestalt practice etc.

Mode Path V: The Future Business Unit President

This individual will make the transition to Stratum III capability somewhere between age 22 and 27. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Training in managerial practices	X		X
Promotion to middle management role	X	X	
Advanced professional training	X		
Stratum Peer group	X	X	
Coaching by manager	X		
Manager once removed mentoring*	X	X	
Interpersonal skills training		X	X
Mindfulness			X
Volunteer service		X	X

*The manager's manager

Mode Path V: The Future Business Unit President - Continued

He or she will make the transition to Stratum IV capability somewhere between age 34 and 43. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
General management assignment/role	X	X	
TEC/Visage Forum style program*	X	X	
Coaching by manager	X	X	
Executive coaching		X	
Executive education/MBA	X	X	
Meditation			X
Manager once-removed mentoring	X	X	
Enneagram studies**		X	X
Volunteer leadership	X	X	X

*Confidential peer group for education and idea exchange

**Personality study emphasizing unconscious habits of attention

Mode Path V: The Future Business Unit President - Continued

He or she will make the transition to Stratum V capability somewhere between age 48 and 70. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
TEC/Visage Forum style program*	X	X	
Coaching by manager	X	X	
Executive coaching		X	
Advanced management program	X	X	
Meditation			X
Esalen**			X
Community board membership	X	X	X

*Confidential peer group for education and idea exchange

**Retreat centre offering humanistic alternative education

Mode Path VI: The Future Corporate EVP

This person will make the transition to Stratum III capability somewhere between age 18 and 22. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Starting an entrepreneurial business	X	X	
Enriched educational experiences	X	X	
Learning from mode peers	X	X	
Travel	X	X	
Sports or hobby team participation and leadership		X	
Mindfulness/body meditation			X
Interpersonal skills training		X	X

Mode Path VI: The Future Corporate EVP - Continued

He or she will make the transition to Stratum IV capability somewhere between age 28 and 34. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Training and experience in managerial practices	X		
MBA	X		
General management work assignment/role	X	X	
Managerial coaching	X	X	
Manager once removed mentoring	X	X	
Mode peer forum		X	X
Leading a business startup	X	X	
Mindfulness/body meditation			X
Advanced interpersonal skills training		X	X
Cross functional secondment	X		X
Volunteer leadership		X	X

Mode Path VI: The Future Corporate EVP - Continued

This person will make the transition to Stratum V capability somewhere between age 39 and 48. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Advanced management/ executive MBA	X	X	
YPO* Chapter programs	X		
YPO* Universities	X		
YPO* Forum	X	X	X
Scaling a business startup	X	X	
Building lateral peer networks	X	X	X
Meditation training			X
Volunteer board membership			X

* Young Presidents' Organization

Mode Path VI: The Future Corporate EVP - Continued

He or she will make the transition to Stratum VI capability somewhere between age 53 and 73. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Sabbatical		X	
Leading a global business	X	X	
Expanding consciousness; relativism to holism		X	X
Leadership roles in community & industry	X	X	X
Mentoring		X	X
Meditation practice			X
Develop outside support/ learning/social group	X	X	X
YPO* Gold Forum		X	X
Community/ public sector board/ commission leadership	X	X	X

* Young Presidents' Organization

Mode Path VII: The Future Corporate CEO

Here, we have a person who will make the transition to Stratum III capability somewhere between age 14 and 18. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work, project, or special study at the right level of complexity	X	X	X
Starting an entrepreneurial business	X	X	
Enriched educational opportunities	X		
Mode peer mentoring	X	X	
International exploration	X	X	X
Sports or hobby team participation and leadership		X	X
Volunteer service		X	X

Mode Path VII: The Future Corporate CEO - Continued

He or she will make the transition to Stratum IV capability somewhere between age 23 and 28. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Training and experience in managerial practices	X		
MBA	X		
General management work assignment/role	X	X	
Managerial coaching	X	X	
Manager once removed mentoring	X	X	
Mode peer mentoring		X	X
Leading a business startup	X	X	
Initiating lateral peer network		X	X
YPO* Membership	X	X	X
Volunteer leadership		X	X

* Young Presidents' Organization

Mode Path VII: The Future Corporate CEO - Continued

He or she will make the transition to Stratum V capability somewhere between age 32 and 39. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Advanced management/ executive MBA	X	X	
YPO* Chapter programs	X		
YPO* Universities	X		
YPO* Forum	X	X	X
Scaling a business startup	X	X	
Building global network	X	X	X
Meditation exploration			X
Community board membership	X	X	X

* Young Presidents' Organization

Mode Path VII: The Future Corporate CEO - Continued

He or she will make the transition to Stratum VI capability somewhere between age 43 and 53. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Building a global business	X	X	X
Sitting on corporate boards	X		
Expanding consciousness; relativism to holism		X	X
Public service leadership	X	X	X

Mode Path VII: The Future Corporate CEO - Continued

He or she will make the transition to Stratum VII capability somewhere between age 56 and 74. The transformation itself will take place unevenly over a multi-year period.

Developmental Support	Skilled Knowledge & Experience	Emotional Social Maturity	Awareness
Work at the right level of complexity	X	X	X
Integrating a global business system	X	X	
Chairing an integrated global system	X	X	
Expanding consciousness; relativism to holism		X	X
Shift focus to global systems, challenges, geopolitical	X	X	X
Global public service	X	X	X

THE SMART CREATIVE

Chapter 3

IDENTIFYING HIGH MODE

with T. Owen Jacobs PhD[13]

Some organizations deliberately consider a candidate's Mode path as part of the recruiting process. For example, major strategy consulting firms look for high Mode path recruits from top business schools, like Harvard, MIT or Stanford. Their business models feature eight week engagements where Stratum VI partners "crack" the strategic question in a week or 10 days, and a team of Stratum III consultants flesh out the analysis, test the designs and develop the implementation plans. Those Stratum III consultants need to be Mode V or VI to grasp the strategic insights of the partners and execute the follow through. A Stratum III consultant at Mode III could not do so.

In the technology workspace, companies like Pariveda also recruit directly for Mode, and emphasize development opportunities for their people. It is sometimes estimated

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13   T. Owen Jacobs, currently Senior Fellow of the RBL Group, worked with Elliott Jaques on assignment with the U.S. Army Research Institute for the Behavioral and Social Sciences on identifying potential general officers.

in the technology space that the top professionals have productivity 10, 40 or even 300 times those of the average professional. This is clearly about Mode path.

More and more the cutting edge companies are focusing on talent strategies that directly target "smarts". Assessment for Mode does that.

The basic insights about levels of work and levels of human capability have been implemented extensively over half a century as systems of Requisite Organization. These implementations have been featured in bureaucratic companies in the mining, manufacturing, electric power, banking, forest products, construction, and engineering workspaces. An important principle in Requisite Organization is that managers need to learn what distinguishes one Stratum from another, and make judgments about who has the capability of working at a given Stratum. Some companies use specialists to help estimate individual capability for information processing, but group "gearing" sessions are usually employed so that managers come to understand fully what the differences in role Strata, and differences in capability for information processing actually mean in practice. This managerial knowhow is seen as an essential competence.

For recruiting, many companies use specialists to assess capability as a part of candidate screening. Bioss, a UK-

THE SMART CREATIVE

Exhibit 3-1: Using Mode Curves to Interpret Resumes
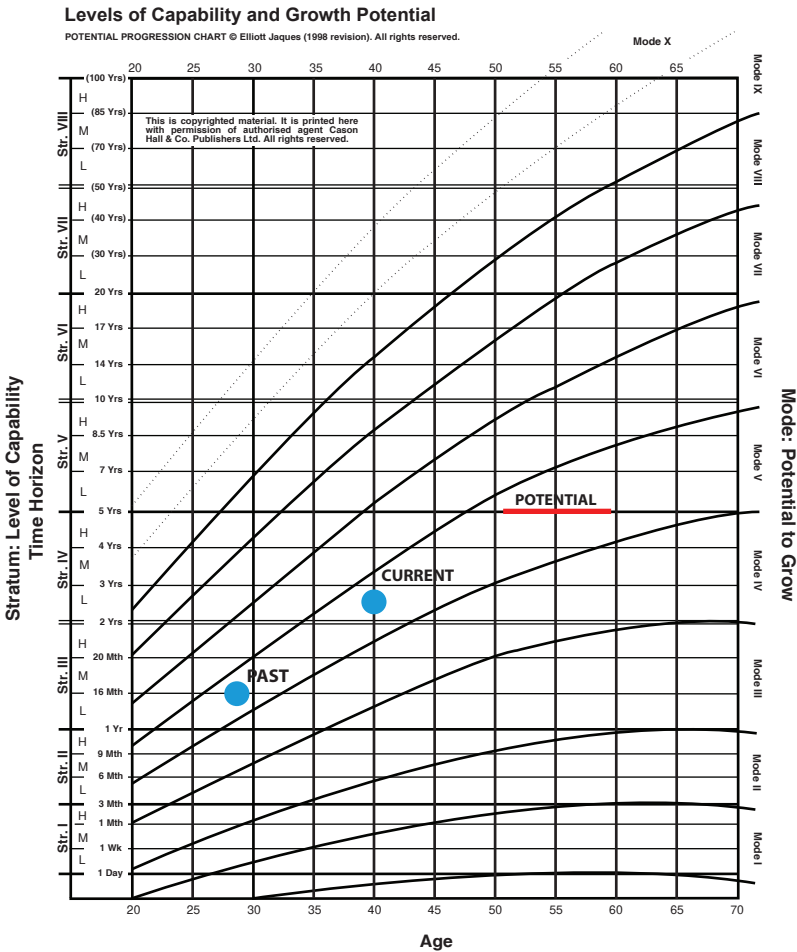
Levels of Capability and Growth Potential

based consultancy, uses Career Path Appreciation to assess capability.[14] In North America, the Mehltretter method has been derived from the foundational work conducted by Elliott Jaques and Kathryn Cason and described in their 1994 book *Human Capability*.[15] It is described in Glenn Mehltretter and Michelle Malay Carter's 2002 article, *The Overlooked Managerial Competency*.[16] The Method has been refined, enhanced and developed by Mehltretter and a team of practicing consultants in the years since.[17]

The Mehltretter method assesses current potential capability directly by a line of questioning that elicits declarative, cumulative, serial or linked parallel constructs, and distinguishes between the 3rd Order level of abstraction of the typical adult and the 4th Order level of abstraction of senior executives or two-star or higher army generals.

Why This is Important

Organizations use current potential capability assessments of candidates in their recruiting processes to estimate the level of complexity the person can handle in a managerial or

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14   www.bioss.com.

15   Jaques & Cason, *Human Capability: A Study of Individual Potential and its Application*, Cason Hall, Falls Church, 1994.

16   Glenn Mehltretter and Michelle Malay Carter, *The Overlooked Managerial Competency: Observing Complexity of Information Processing (CIP) to Match People to Jobs and Determine Future Potential*, PeopleFit, Raleigh, November 2002.

17   Herb Koplowitz, Glenn Mehltretter, Michelle Malay Carter, Don Fowke, Heidi Mehltretter.
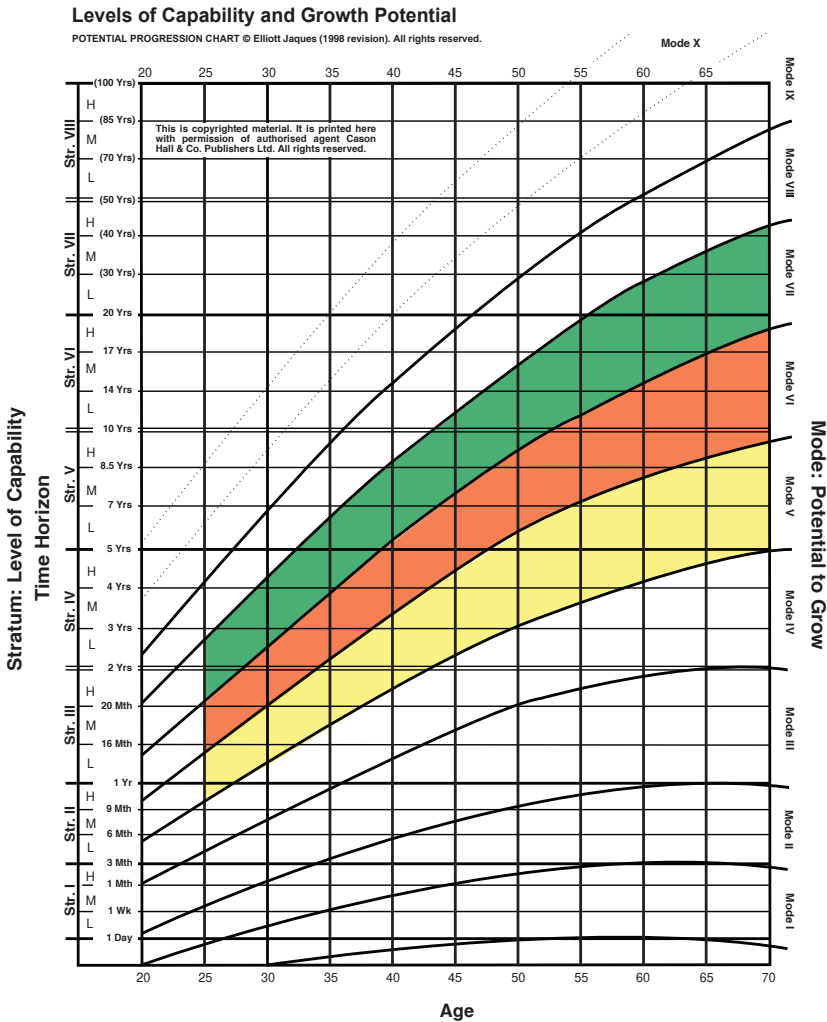
professional role. Typically, an organization will have scoped the role in question in terms of its level of complexity. Roles are scoped using several variables including time span; cumulative, serial or system processing required; order of information processing; relationships with others; and the need to provide context for subordinates. Fit-to-role is the objective, and as such also requires assessment of other dimensions beyond current potential capability, including skilled knowledge and experience, motivation, and management style. Current potential capability is necessary but not sufficient to ensure a candidate can handle the managerial or professional complexity in the role.

Current potential capability assessments may be used for existing employees to identify their capability to handle complexity today. In addition, talent management organizations are interested in the potential capability looking 3, 5 or 10 years into the future. This is where focus on Mode path comes to the fore.

Use Mode Curves to Interpret Resumes

The Mode path approach focuses on the set of curves that flow upward and to the right in Exhibit 3-1. With interviewees who are at an advanced state of their career, plotting the level of complexity they have handled in past roles can indicate the probable envelope that contains their potential developmental path. For example, a 40 year old general manager who took on a managerial role in his late 20s with a 12 – 15 month time span is probably a Mode V who will have the capability to handle a senior executive role in their 50s.

THE SMART CREATIVE

Exhibit 3-2: At 25 a Stratum III Could be Mode V, VI, or VII

Levels of Capability and Growth Potential

POTENTIAL PROGRESSION CHART © Elliott Jaques (1998 revision). All rights reserved.

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Mode Curves Represent Fluid Intelligence

The Mode curves represent fluid intelligence, which tends to be stable, declining slightly over one's lifetime, which probably accounts for the negative acceleration of the curves. As we age, we aren't as fast, but our problem solving resources (mental models) are more extensive.

Owen Jacobs describes fluid intelligence in the following way:

> *"My feeling about fluid intelligence is that it's problem solving ability, the ability in real time to create a mental representation that solves a problem, or see relationships that solve a problem. It's often measured non-verbally with tests like mental rotation. It's a kind of horsepower, and maybe that's scientifically as good a way as any of talking about it. It is clearly important to differentiate it from crystallized intelligence, which is mostly that which is learned and stabilized in long-term memory. Current research suggests that thinking about complex issues requires summoning complex mental models, which exist as a stable pattern of electrical excitation. These patterns tend to be repeatable, and thus must have been stored in long-term memory. They can also be modified. These patterns apparently also can be systematically reactivated in background brain activity without conscious awareness. These reactivations tend to reinforce them, to re-stabilize them, maybe trim them, in much the same way that other components of crystallized intelligence, such as vocabulary definitions, are stabilized and modified. So these mental models are stored long-term, are systematically refreshed by regular brain activity, and are the foundation of "wisdom" (systems understanding) as we age."*

Young "High Potentials" Have a Wide Range of Potential

Younger individuals have not yet had the opportunity to demonstrate their problem solving intelligence in a career setting. Sometimes we interview ivy-league graduates in their mid twenties who look, on paper, as having high potential. Our Mehltretter questions elicit serial constructs and it seems clear that the interviewee is Stratum III. But Stratum III low, medium or high? It makes a difference, as Exhibit 3-2 suggests. Here, an individual of approximately 25 years of age who develops serial arguments may be in any one of three different Mode envelopes. Counting the number of serial arguments is an indication, but does it really identify an individual who could someday run a business unit at Stratum V, or be a global VP at Stratum VI, or a global captain of industry at Stratum VII? These are big differences in potential, and big differences in horsepower. Let's look at these differences and how to assess them.

Skilled Assessors Sense Mode Path Differences

Professionals using the Mehltretter method often sense the differences, but how? Owen Jacobs describes it this way:

> *"I think what we sense as we interact with other people is their level of fluid intelligence. I've had a theory that, when we are interacting with people we haven't met before, we probably are evolutionarily programmed to ask: is this individual more powerful than I am, and is this individual friendly? But we assess power indirectly: is this individual quicker intellectually than I am, about where I am, or less*

quick than I am. And we do that unwittingly but it is programmed into us so we can't avoid doing it. So what is happening then is that people who reliably sense high mode from conversation have become sensitive to indicators of intellectual quickness with reference to themselves, and so it isn't a precise measurement, it is a relative assessment."

Normative Exemplars to Compare Ideational Fluency

Experienced interviewers have other relevant skills, as Jacobs points out:

"It's also possible for someone who has done a lot of assessments to create a "normative" self that can be used for comparison. What I am hearing then is comparison with a normative self, which isn't me, but with someone I know at a given level. Exemplars. If I'm trying to make a decision about an individual's future potential, the first thing I look for is ideational fluency, how quickly does an individual pick up something. We throw out a possible "hook" which is more or less obvious. Somebody who responds quickly to a well-concealed hook is going to have higher ideational fluency, perhaps higher fluid intelligence, and perhaps a higher mode."

Trust Intuition, and Verify

Experienced interviewers often have an intuitive sense of Mode; the challenge is to test the intuitive "hit" by looking for other information that supports or negates it. Such information helps distinguish between intuitive insight and projection. Track record in the resume is one such source, and the more years of work experience, the more likely the track record indicates which Mode envelope best describes the person.
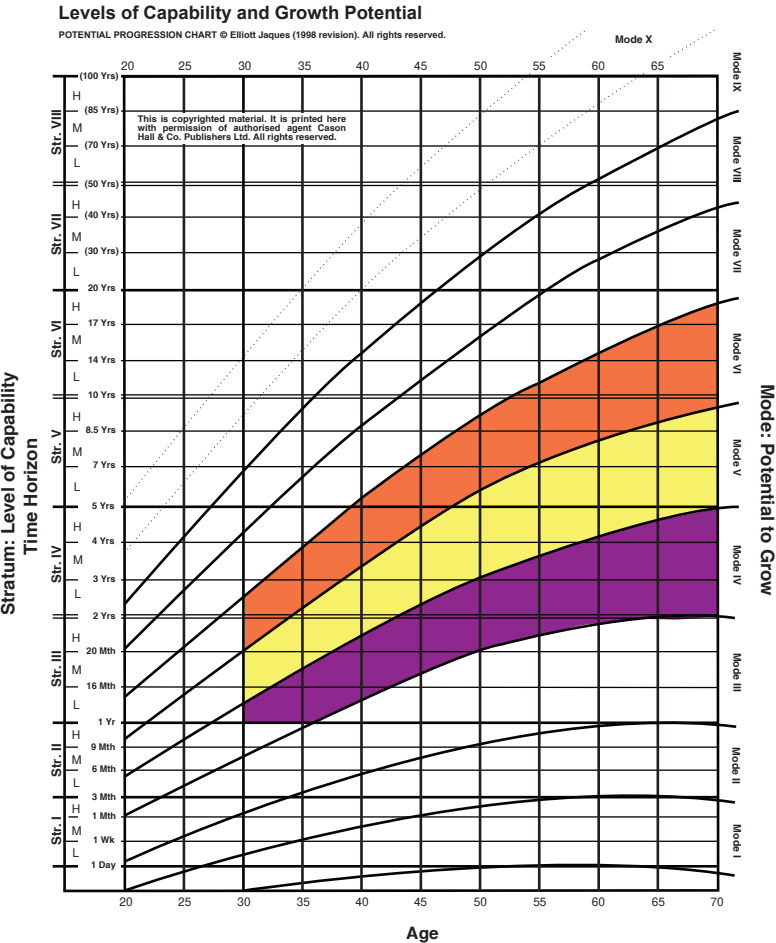
Resumes Can Mislead

Looking at resumes to evaluate the track record can be misleading. We tend to think of VP level people in medium sized companies as occupying Stratum IV roles, but in banks and many other organizations the VP title has become so debased that it is meaningless. Resumes can mislead in the other direction as well. Owen Jacobs notes:

> *"In the military the curves are violated in spades after 45 because people are constrained opportunity-wise before. The curves are pretty good. What we do is try to be as precise as we can about current potential, and we try to see if the individual has developed mental models that are appropriate to current potential. We do make an effort to see if extraneous events may have had an influence on development."*

> *"Up to the Brigade level, Work Level (WL) IV, people are constrained as to how rapidly they can advance. After Brigade, individuals identified as high potential accelerate across the Mode lines from about age 45, so an individual working at high WL IV as a Brigade commander will go to low WL V as a Brigadier in two years, high WL V as a Division Commander in 2 or 3 years more, to low WL VI or middle WL VI as a 3 star General in another 3 years, and to low or Mid WL VII in another 2 years for those rare individuals capable of WL VII roles. They had the capability before but the lock step of roles wouldn't allow them to be advanced. The system is set up that way in order to have a lot of high potential people at lower ranks so in the event of a mobilization there is a ready supply of capable people who can move to high rank. Formal organizations in the private sector typically aren't like that."*

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Exhibit 3-3: At 30 a Stratum III Can be Mode IV, V, or VI

Levels of Capability and Growth Potential

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Distinguish Between Concrete and Abstract Constructs

> *"Basically, with the military model, work levels I through III, up to the level of Battalion, are direct leadership and are levels of leadership and work where individuals must have complex mental models that are constructed primarily with reference to the tangible world, as in a factory where tangible products are made. The mental models may be complex, but they are going to be anchored in constructs that have reference to the physical world. It does not say they cannot make mental models at a higher level at a later time, but that is where they are at that point. However, if they cannot create the more abstract constructs required to populate higher-level mental models, they obviously cannot construct such models. Said another way, concreteness is a limiter. We also listen for that when we are "testing" other people."*

Exhibit 3-3 shows an individual roughly 30 years of age who develops serial arguments. Here the Mode possibilities are IV, V and VI. The difference between IV, on the one hand, and V and VI on the other is between a potential to work at a general management or senior professional role for Mode IV, and the potential to operate at a senior executive level at V or VI.

Look for Intellectual Curiosity and Abstract Constructs

Owen Jacobs notes:

> *"Some individuals have more horsepower (the capacity to do mental work) than they need for the role they find themselves in. What that*

means is that they can proceed at the required pace to learn that role, but have horsepower left over. Someone who is high mode will also show intellectual curiosity. If you raise a question or make a comment about something the individual isn't informed about, in a very large number of cases a high mode person is going to respond with interest and questions: tell me more, that is very interesting. You have that marker of intellectual curiosity from a relatively young age in high mode people. Excess horsepower demands satisfaction and intellectual curiosity is how satisfaction is gained. High mode individuals are going to be developing constructs at higher levels of abstraction that don't fit into their current mental models, but these constructs are not lost. They are stored and will be systematically interrelated later when enabled by experience. With higher mode people, even at a relatively young age you are going to see intellectual curiosity and curiosity about constructs that they have no experience base to be talking about. Since it wasn't a part of their role it had to be something they went to get themselves because they were interested. That's the kind of marker I use to differentiate Mode VI and VII from IV and V.

"Thus, the level of abstraction is a hugely important indicator. Even at a very young age, individuals at Mode VI and VII, someone with the horsepower to get there, the curiosity and drive to get there, will be storing the constructs. Given the opportunity to experience either directly or vicariously those roles that would enable learning the probabilistic connections among those constructs, they can then proceed to construct the mental models required at VI and VII.

"We develop constructs as the opportunity exists to observe, reflect and store, but we don't necessarily know what to do with a construct. Individuals at college level frequently are interested in societal variables, the interaction of societies over time, the flow of

civilization over geological time. We will hear people talking about such topics in an interested way, but they will not be able to use those constructs in a meaningful way to make policy decisions at VI and VII because they have not been able to fit them together probabilistically; but the concepts are there. So, as opportunity presents itself, these individuals are going to be fitting stuff together in a probabilistic way such that little pieces of mental models are getting formed all the time. When we are very young we are probably working primarily on the kinds of abstractions that work on the physical world. Once we start reading it is a very different world. The question is, what do we choose to read? The capacity to read and form crystalized intelligence is probably what differentiates human kind from lesser than human kind. Arguably, civilization depends on the written word. For someone who is very curious intellectually, what is printed on paper or available electronically is going to make a difference in where an individual is able to go conceptually over the long term of her life."

Look for Speed of Mental Model Formation, and Complexity

"The major driver of the mode curves is speed of mental model formation. If we envision a mental model as an internal representation of external problem space (or external systems), then it is compelling to think of mental models as systems of constructs; i.e., that the interrelationships among the elements (constructs) of the model are known. Complexity is then a function of level of abstraction and the nature of the interrelationships among the elements. Problem solving is then perhaps comparable to finding a pathway from 'where I am' to 'where I want to be'. That is just a

lot easier with problem space containing tangible objects than with problem space containing intangible objects.

"In the first case, that of tangible objects, interrelationships can actually be seen visually, e.g., how a bearing fits within a bearing race. But we do not know how to visualize a "cohesion" fitting into a 'combat ready' problem space. We can talk about that, but we cannot visualize it. We can also develop a plan to create cohesion, but must use words to do so. The plan eventually devolves to tangible objects, e.g., people, but that is because it boils down to purposeful reshaping of the interrelationships among people. But if the interrelationships among people are all we can see, then we cannot develop a plan to increase cohesion.

"We keep returning to an old metaphor of the generations of computers. The nominal separation between generations is really the level of abstraction of the code; but the computer CPUs are still executing machine language. So, it is helpful to be able to keep the level of work separate from the capability of the worker. And in that regard, we would suggest that Mode is two things. The first is that it is the average rate of growth of complexity of a person's mental models. The second is a probability statement about how complex the person's mental models are at any given point in time. That is a function of a lot of things, as Elliott postulated: something like "power" (and my thought that fluid intelligence might be a proxy for whatever that is), experience, and the motivation to reflect on experience to develop meaningful outcomes. Most people cannot build models that are more complex than the problem spaces they have had to work with. It is possible that some people such as Einstein or Pasteur can, by virtue of mastering a system to the point that they can infer missing pieces that are compellingly necessary for the system to operate as it appears to operate."
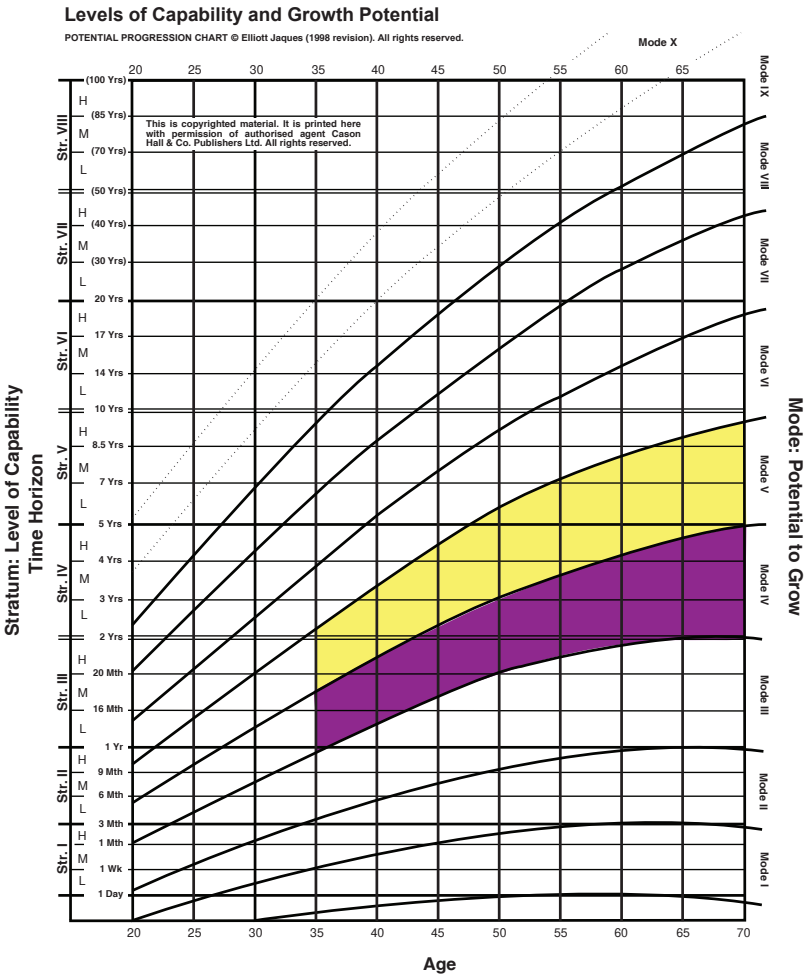
Be Sensitive to Quickness

"There are experimental ways of determining a person's "internal speed". Ideational fluency depends on it. Your computer's CPU has a clock speed which is dependent on the current supplied to it; you make it run faster by manipulating clock speed and core voltage. The better systems have the potential for CPU power management -- overclocking. Similarly, we have our own internal "clock speeds." Clock speed, for example, influences how quickly we can bring something into working memory. For individuals who are average intelligence or below, measured IQ significantly correlates with "clock speed." Here, we take a leap of faith; we assume clock speed is important at higher IQ levels (take that with 2 grains of salt). Don't you sometimes sense that a person really quickly picked up on something you said? They have non-verbal sensitivities and cues; that is how you go about building rapport. You are fishing for connections and are aware when you make one, because you got one step further in building rapport. A lot of this stuff is built in, evolutionarily. People may make different responses based on personality, but they typically can't control their non-verbal cues. Top level executives have gotten pretty good at controlling non-verbal cues, but most other people haven't, and that is what we see.

"Instantaneous clock speed varies as a function of mental tiredness. Our clock speed isn't just mechanical, but is also dependent on the state of the physiological being. For any individual it is based on some kind of middle ground. A cup of coffee will make you quicker. It is also subject to a lot of variables. It tends to drop off with age, as fluid intelligence does. That is why the mental models concept is

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Exhibit 3-4: At 35 a Stratum III Can Be Mode IV or V

Levels of Capability and Growth Potential

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Stratum: Level of Capability Time Horizon

Mode: Potential to Grow

Age

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such an extraordinarily valuable thing for SST, for RO, because the curves tend to climb especially quickly for high Mode people, and they flatten out only late in life. If we use the construct of mental models that are stored and stabilized by background brain processes, then we are very good at making mental models when we are young and less good as we age. But at the same time our mental models are increasingly complex and tend to remain stable. Measured crystalized intelligence does not decline with age. We store it for old age and it is there on call and it ceases to be of use only when the brain starts to break down enough that pieces of the model become obscure."

Distinguish Between Analytic and Integrative Thinking

Exhibit 3-4 shows a roughly 35-year-old individual who, once again, develops serial arguments. For this person, the Mode path possibilities are IV and V. The distinction here is between concrete and analytic, on the one hand, and integrative thinking on the other.

Owen Jacob notes:

> *"At levels I and II there are some probabilistic things but most stuff that is really important is direct connection. The constructs at II and III are tied to the physical world, and the probabilities are more likely close to 1 or 0. So things are easier at I, II and III. Problem space is more clearly bounded. At IV and V, we have information that may or may not be relevant to the problem space, so we may have difficulty identifying the boundaries of the problem space."*

Mode III is very concrete and more dogmatic compared to a person at IV or higher.

"There is a similar difference in fluidity of conception between V and VI. It presents in the time horizon, in part. Most of the constructs in the mental models at IV and V are extrapolative. Extrapolative thinkers can project into the future, but they are not very good at conceptualizing the future that is likely to emerge from the mix of factors that we see in the world at the present time. True Mode VI is consideration of future potential. Individuals who will never be capable of functioning at Mode VI are limited by physiological factors such as fluid intelligence or a preference for extrapolative thinking that is basically analytic, as opposed to integrative.

"People employ a mix of constructs; integrative at times, analytic at other times. If you find someone with a strong sensing preference, that individual may be very bright but as a result of their sensing preference he or she is going to be much more oriented towards making things run well, and tuning a system, than inventing a different system. Consider this as applied to the business of finance; accountants and comptrollers tend to be analytic, extrapolative thinkers, while budgeteers are extrapolative."

Distinguish Between Bounded and Non-Bounded Time

"Time is more a constraint of low Mode than high Mode. Higher Mode individuals will differentiate according to time as they are programming themselves, but the higher the Mode the less the individual is comfortable with constraint, and wants to be free of the constraint of time in thinking about what they want to think about. The tendency at high Mode is to believe that time is relative, one can use time if needed, but it is not how one orders existence, nor does it act as a constraint on existence.

THE SMART CREATIVE

Exhibit 3-5: Things to Look for in Distinguishing High Mode

MODE MARKER

Candidate Name:

Interviewer:

MODE [Mark an X in each square]	IV LOW	V MEDIUM	VI HIGH	VII VERY HIGH
1 **FLUID INTELLIGENCE** it's problem solving ability, the ability in real time to create a mental representation that solves a problem, or see relationships that solve a problem. It's often measured non-verbally with tests like mental rotation. It's a kind of horsepower, andmaybe that's scientifically as good a way as any of talking about it.				
2 **COMPLEX MENTAL MODELS** which exist as a stable pattern ofelectrical excitation.				
3 **RELATIVE MENTAL QUICKNESS is** this individual quicker intellectually than I am, about where I am, or less quick than I am.				
4 **IDEATIONAL FLUENCY**, how quickly does an individual pick up something Somebody who responds quickly to a well-concealed hook is going to have higher ideational fluency, perhaps higher fluid intelligence, and perhaps a higher mode				
5 **CREATE MORE ABSTRACT CONSTRUCTS** required to populate higher-level mental models. concreteness is a limiter. developing constructs at higher levels of abstraction that don't fit into their current mental models. the level of abstraction is a hugely important indicator. Even at a very young age, individuals at Mode VI and VII, someone with the horsepower to get there, the curiosity and drive to get there, will be storing the constructs.				
6 **INTELLECTUAL CURIOSITY** from a relatively young age in high mode people.				
7 **SOCIETAL/GEOLOGICAL VARIABLES** Individuals at college level who are interested in societal variables, the interaction of societies over time, the flow of civilization over geological time				
8 **CLOCK SPEED**, for example, influences how quickly we can bring something into working memory. sense that a person really quickly picked up on something you said				
9 **FLUIDITY OF CONCEPTION** difference in, between V and VI. It's the time horizon, in part. Most of the constructs in the mental models at IV and V are extrapolative				
10 **INTEGRATIVE THINKING** Individuals who will never be capable at VI are limited by physiological factors like fluid intelligence or preference for extrapolative thinking that is basically analytic as opposed to integrative. higher mode is going to be integrative equally as easily as analytic , will know the difference, and will prefer fewer constraints because constraints can limit what can happen integratively. Tendency at high Mode is to say time is relative, can use time if I need to, but it is not how I order my existence, and does not act as a constraint on my existence.				

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"Streufert's notion of complexity of information processing is sound.[18] *He was clear that an analytic process is not as complex as an integrative process. An individual who is higher Mode is going to be integrative equally as easily as analytic, will know the difference, and will prefer fewer constraints because constraints can limit what can happen integratively. Individuals who are quantitative tend to be more concrete. It is a rarity to find somebody who is capable of integrative thought and at the same time is a good mathematician. Such people have strong mathematical modeling skills and will become theoretical mathematicians."*

Estimating Mode Path

Managers can learn to estimate Mode. The first step is to get a candidate to explore a new issue out loud, in a problem solving way. An appropriate answer is not about history, or about somebody else's models or ideas, but a genuine thinking through of new territory. Appropriate questions might include the following:

"Many people would understand democracy as being about voting. But we see some concerns about the Arab Spring in Egypt, for example, voting in a government that was considered undemocratic – or the Nazi party, which was voted into office. In your thinking, is democracy anything beyond voting? If so, what 's the central concept

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18   Streufert, S. (1997), "Complexity: An Integration of Theories". *Journal of Applied Social Psychology*, 27: 2068–2095. doi: 10.1111/j.1559-1816.1997.tb01641.x

and how might it be violated even if there is voting? Would it be possible for a system to be democratic in the absence of voting?"

or perhaps;

"What is the most important issue in education in the country today, and how should it be addressed?"
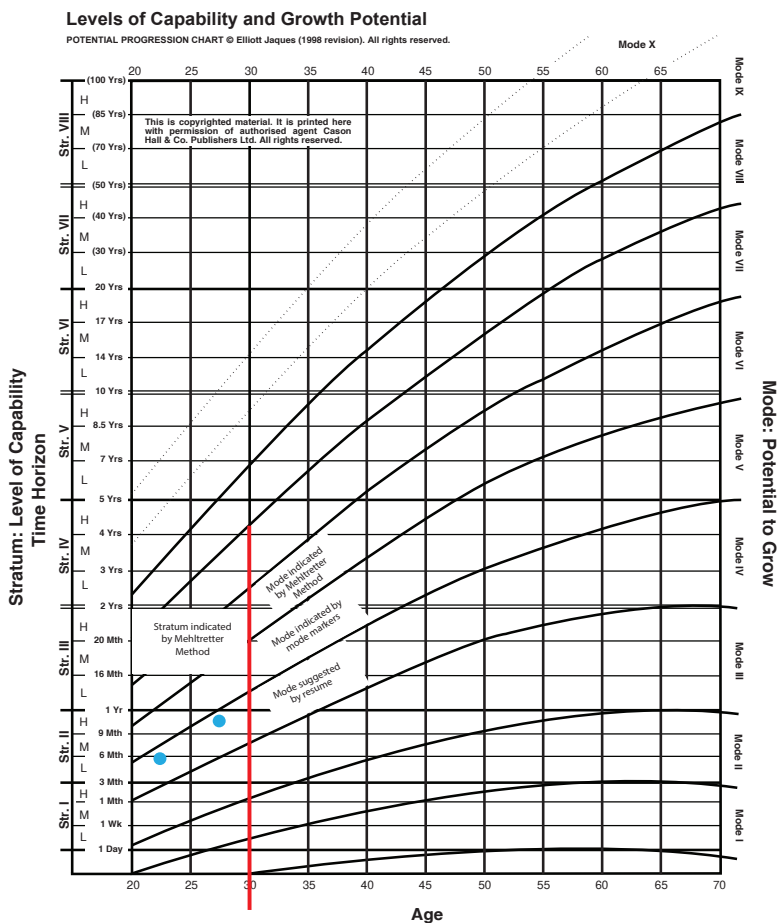
The second step is to have a list against which to check for relative Mode markers. An interviewer who has a clear view of his own Mode can often gauge the replies of others relative to him or herself. Such a checklist is shown in Exhibit 3-5.

How this might be done is suggested in the following example.

An engineering manager is interviewing a short list of candidates for a project manager position. The company is interested in engaging someone who could handle complex projects and who would have the potential to grow into a branch manager role within a decade. The engineering manager knows that the projects to be managed will be relatively complex, needing 12 to 18 months to bring to completion. Accordingly, he needs Stratum III capability.

There are several candidates on the short list. Some of these are seasoned project managers in their late 30's to mid 40's. The youngest candidate, a 30-year old, has had extensive experience with smaller projects in eight years' experience

Exhibit 3-6: Triangulating Resume-Stratum-Mode

Levels of Capability and Growth Potential

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Stratum: Level of Capability Time Horizon

Mode: Potential to Grow

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Mode indicated by Mehltretter Method

Mode indicated by mode markers

Mode suggested by resume

Stratum indicated by Mehltretter Method

Age

in the industry. Exhibit 3-6 illustrates assessment of this candidate from a Mode point of view. First, the resume suggests Mode path IV. This path indicates that the candidate has current potential capability in Low Stratum III, adequate for the project management challenge in the immediate future.

Paying careful attention to the pattern of reasoning in the answers to open ended questions, the engineering manager hears strong serial arguments of the form, the existence of condition A which leads directly to B, the problem of C will surely arise. Or maybe something like if we don't get the engineering design of the piping completed by August we will not have the boiler in place in time to get the roof on the plant before freeze-up, and we will not be able to put the instrumentation in place in time to meet our deadline for commissioning. This suggests that the candidate's current potential capability may be mid to high Stratum III. This, of course, is the Mehltretter method. By this reading, a Mode VI would be indicated by reference to the developmental curves in Exhibit 3-6.

Careful consideration of the Mode Markers in Exhibit 3-5 offers a different interpretation. The engineering manager, who knows his own Mode to be V, resonates with the candidate. This shows up in an affinity for mental models of familiar complexity, a similar mental quickness and fluid intelligence. The candidate works with practical constructs that are an extrapolation of current thinking and knowledge. There seems to be little reference to broad societal patterns, nor is there a reaching for concepts from other areas that might be indicative of integrative thought. Clearly the candidate is sharper than

Mode IV, but on the concrete side of the Mode V/Mode VI divide. He is most likely Mode V.

The candidate exactly fits the bill for the position. He can handle Stratum III projects with about an 18-month completion. He will likely be able handle a branch manager role in Stratum IV in his late 30s or early 40s. Longer-term, given appropriate developmental support, he is a likely candidate for a vice-presidential role in Stratum V in his 50s.

Assessing Potential: An Important Managerial Skill

A central message of this chapter is that assessing candidates is a skill that managers need to learn. This is not a new idea, but experience indicates that they do it badly because they are not clear what they are looking for. There is an old adage in engineering that the most important step in estimating is identifying all of the relevant items and putting a first approximation on each. Similarly, the first step in assessing candidates is identification of the skilled knowledge and experience needed to do the work in the role. The second step is determination of the level of complexity inherent in the role, and the Stratum and band within Stratum, needed to do the work. And the third step is estimating the candidate's Mode path, suggesting the potential development path of the individual and how it fits into the business strategy of the company.

None of this is to say that the estimates so derived should be carved in stone. Regular reviews of both performance and potential are in order so that the initial assessment can be checked.

THE SMART CREATIVE

Chapter 4

THE TALENT UPSHIFT

The Smart Creatives featured so far in this book are but a subset of two emerging trends that have big implications for talent management. The first is a very rapidly expanding pool of elite talent more than seventy years old, capable of handling highly complex policy, strategy and managerial issues. This bodes well for solving the big challenges of the 21st century.

The second trend is the sharp upward shift in cognitive potential of the Millennial Generation who, as they mature, offer an unprecedented capability for managing complexity in implementation, change and innovation. This trend opens up opportunities for business strategies based squarely on talent strategies.

Companies and governments that grasp these trends will have the ability to shape the future as never before.

These trends are driven by underlying patterns in the demographics of most of the Western world, and by improvements in 'smarts' described by the Flynn effect.

Let's look at these demographics in turn.

Getting Older, and Getting Younger

In 2016, the population of Western industrialized countries was younger than at any time in history, and will remain so through the middle of the century. This means we have a growing capacity to solve the big problems and get things done.

But how can this be so when everywhere we look there is a wringing of hands about the baby boom generation retiring, and relying on a smaller working age population to support them? Well, it's a matter of how you look at it. The average age of the population is rising, but remaining life expectancy is rising faster. It is expected that of the Millennial Generation, born in the last 30 years, half will live to see their 100th birthday.

So today's assumptions that people are old at 65, and should retire from making a useful contribution, and that they are of failing health and declining mental capacity, are simply wrong.

Jeroen Spijker and John MacInnes, using UK data, demonstrate in *Population ageing: the timebomb that isn't?*[19] that remaining life expectancy gives a whole new view of that growing segment of the population who are over 65.

19   Jeroen Spijker and John MacInnes, "Population ageing: the timebomb that isn't?", BMJ 2013;347:f6598, October 2013.

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Exhibit 4-1: Ted Rogers' Path of Capability
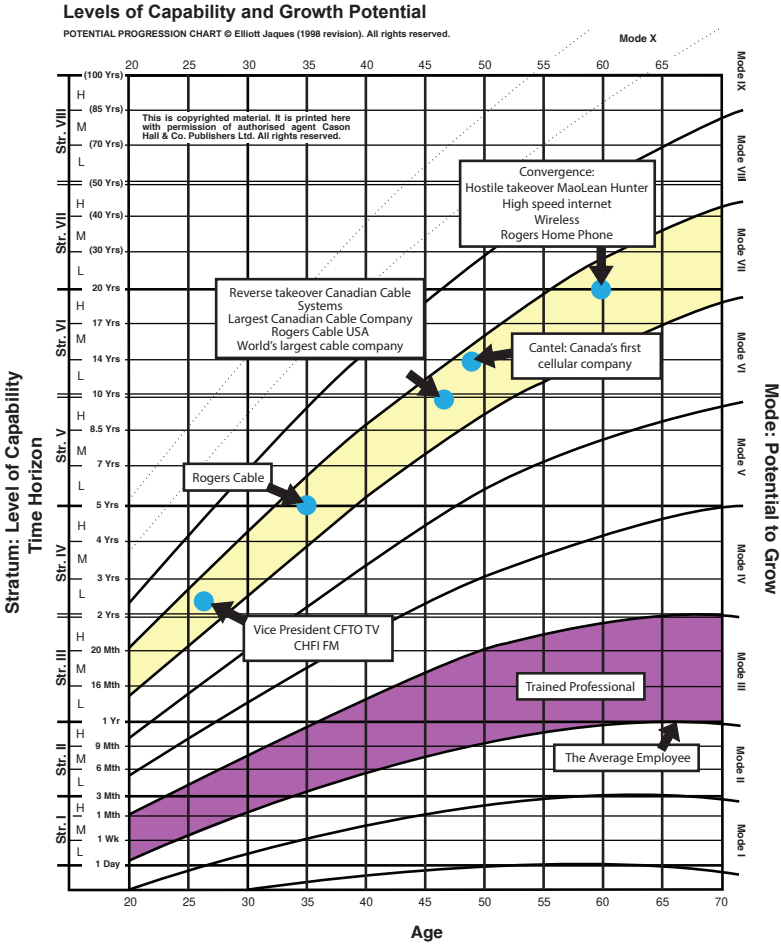
Levels of Capability and Growth Potential

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> *"From the late 1970s improvements in old age mortality have reversed the rise in the proportion of the population with low life expectancies."*

They assert that;

> *"The extent, speed, and effect of population ageing have been exaggerated because ... [they]do not take account of falling mortality…*

> *"When measured using remaining life expectancy, old age dependency turns out to have fallen substantially in the UK and elsewhere over recent decades and is likely to stabilise in the UK close to its current level."*

And there is more, much more!

Let's look at elite leadership first.

Understanding Managerial Complexity

Elliott Jaques, writing in the 1970's, described a pattern of growth of capacity to handle managerial complexity. This pattern has come to be central to advanced Talent Management systems used by corporations to assess and plan their managerial leadership capacity and succession strategies.[20] Subsequent research with the US Army and various industrial enterprises has articulated the science

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20   Elliott Jaques, *A General Theory of Bureaucracy*, Heinnemann, Portsmouth NH, 1976.

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and methodology behind this approach.[21] An example of the Jaques Talent Pool Maturation Data Sheet is shown in Exhibit 4-1, as applied to the career of the late Ted Rogers, a noted Canadian entrepreneur.[22]

There is a lot of information in Exhibit 4-1, and it is worth taking a few minutes to understand it. On the left hand side are "Strata" or levels of complexity, from I to VIII. The strata relate to levels of complexity in a managerial hierarchy, where a Front Line Manager at Stratum II can set context for, and effectively manage, front Line Workers at Stratum I, Stratum III Middle Managers can do so for Front Line Managers at Stratum II, and so on up to Stratum VIII managers, who are capable of handling the complexity of a global enterprise such as General Electric or comparable multi-national companies. A "Time Horizon" is associated with each Stratum, and refers to the time frame within which the longest task in the role needs to be managed.

Almost everything in an organization goes on at Stratum III and below. Front Line Workers at Stratum I make decisions within prescribed procedures, dealing with one issue at a time. They have a time span of discretion, meaning the length of time they can independently handle the tasks in their jobs, of up to three months. Front Line Managers at Stratum II solve problems comprising several variables together, and can

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21   Elliott Jaques and Kathryn Cason, *Human Capability: Study of Individual Potential and its Application,* Falls Church VA, Cason Hall, 1994.
22   Donald V. Fowke, *The Best is Yet to Come: The Ted Rogers Story: Nine take-home ideas for entrepreneurs,* Toronto, the New Management Network, 2009.

therefore sort out problems beyond the competence of Front Line Workers, and have a time span of discretion of up to one year. Stratum III Middle Managers can devise and manage several alternative serial paths to meeting objectives, and have a time span of discretion of up to two years. Stratum III managerial roles include plant managers, engineering managers, controllers, sales managers and marketing directors. Senior professional work, including medical doctors, professional accountants and professional engineers is usually considered to be Stratum III work. Working with industrial situations in the 20th century, Jaques estimated that 10% of the population was capable at less than Stratum I, about 40% at Stratum I, 40% at Stratum II, and 7% at Stratum III. In other words, Jaques estimated that that almost 90% of the world's work was done at Stratum III or below.

Ted Rogers and the Developmental Path

Looking at Exhibit 4-1, we see that Ted Rogers is at the lower end of Stratum IV when he was 27 years or so old. Stratum IV is, in managerial terms, where general management takes place. Here, coordination of multiple serial paths of sales, product development, production, safety and quality control is the essence of the work. Ted's role as Vice President CFTO TV and CHFI FM was of that quality, and he had this job at a relatively young age.

Which leads us to the curves on Exhibit 4-1 which rise upward and to right. These, according to Jaques' extensive data, are the potential developmental paths that an individual

would follow, if they got the necessary skilled knowledge and were motivated to do the work. The average employee in an organization might be capable at Mid Stratum I at age 27, lying on the curve along the bottom of the purple mode path on Exhibit 4-1. This average employee would likely be capable of Stratum II work in their early thirties, and with the necessary skilled knowledge and motivation, be capable of Front Line Management throughout their career. A trained professional might start out working at Stratum II in their mid twenties, and as they developed into a mature professional in the their mid thirties, finish out their career in Stratum III. We would call such a person a Mode III, referring to the right hand scale in Exhibit 4-1, which means they would have a potential career path within the Mode III envelope that ends up defined by Stratum III at age 70.

Ted Rogers, by contrast, is clearly on a different trajectory, becoming CEO of Rogers Cable in his mid thirties, integrating multiple businesses in his late forties, and developing a portfolio of complementary businesses in a complex industry late in life. Ted Rogers was what we call a Mode VII executive.

Capacity to Solve Problems at a Higher Level

Jaques described the changes in capability, and in capacity to handle complexity, as one moved from one stratum to the next as analogous to ice changing to water, and then at the next boundary, water changing to steam; like a change in state. A more fundamental change takes place at the boundary between

Exhibit 4-2: The Effect of Longevity: Rough Estimate of Levels of Capability Change During the 20th Century

Typical Role	Type of Work Processing	Description of Level	Approximate Numbers in population per million 21 to 50 year old population	Approximate Numbers in population per million 21 to 70 year old population	Change
Universal Genius	Declarative+	Stratum IX+	1	3	200%
Super CEO	Parallel	Stratum VIII	10	100	900%
CEO Global Corp	Serial	Stratum VII	50	500	900%
Corporate EVP	Cumulative	Stratum VI	300	1,000	233%
Business Unit CEO	Declarative	StratumV	700	5,000	614%
General Manager	Parallel	Stratum IV	5,000	10,000	100%
Middle Manager	Serial	Stratum III	40,000	70,000	75%
Front Line Manager	Cumulative	Stratum II	400,000	400,000	0%
Front Line Worker	Declarative	Stratum I	400,000	400,000	0%

Estimates from Elliott Jaques, The Life and Behavior of Living Organisms: A General Theory

Stratum IV and Stratum V. Here, the mental processing shifts from the 3rd order symbolic processing typical of Strata I to IV, to 4th order abstract conceptual. This abstract conceptual processing is necessary for reinventing the business model as a business unit president at Stratum V, managing a portfolio of business units at Stratum VI, or developing an integrated system of business units at Stratum VII or VIII.

While comprising a very small segment of the population, people functioning at Stratum V and above as leaders, policy makers, innovators and other influential roles have a unique capacity to understand social and economic issues, frame strategies, and organize and manage capacity in society to address them. Einstein famously said that problems cannot be solved at the level they are created. Many of the issues facing the world, from global economic complexity to climate

change, will need innovative capacity of a higher order to resolve them. The good news is that the aging Western population promises much greater capacity for doing so than has been available in the past.

20th Century: Expanding Capacity to Manage Industrial Complexity

Elliott Jaques produced the table in Exhibit 4-2 to illustrate the effect of a shift in life expectancy from 50 years to 70 years, as happened over a hundred year period into the mid twentieth century.[23] Here, the number of Stratum V and higher persons in the adult population jumps from about 1,000 per million to some 6,000 per million, or a 600% increase in the capacity to work at a 4th order level of symbolic complexity. How this comes about can be seen from the curves in Exhibit 4-1 where, living longer, more people live at Stratum V or above for a longer period.

The bulk of Jaques' work was done in the mid to late 20th century, and in preparing his curves he stopped at age 70, well beyond what was assumed to be an appropriate retirement age. Currently in the early 21st century, and looking ahead at the anticipated lifespans of the millennial generation, the Jaques curves stop perhaps thirty years too soon.

Jaques' curves were developed from his own data on executive development compiled over 35 years, and studies by Gillian

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23   Elliott Jaques, *The Life and Behavior of Living Organisms: A General Theory,* Westport CT, 2002.

Exhibit 4-3: Longer Lives Mean More Smart Leaders

Typical Role	Type of Work Processing	Description of Level	Approximate Numbers in 21 - 70 year old population per million	Approximate Numbers in 21 - 100 year old population per million	Change
Universal Genius	Declarative+	Universals	3	103	3333%
Super CEO	Parallel	Stratum VIII	100	500	400%
CEO Global Corp	Serial	Stratum VII	500	750	50%
Corporate EVP	Cumulative	Stratum VI	1,000	2,750	175%
Business Unit CEO	Declarative	Stratum V	5,000	12,500	150%
		Totals	6603	16603	251%

Stamp, Owen T. Jacobs and others. At the executive levels we are considering here, Jaques noted:

> *"Two significant features of these maturation bands can be noted. The higher a person's potential capability, the faster is the rate of maturation and the later in life it continues. The higher capability individuals are still growing in potential capability long after normal retirement age.*[24] *"*

21st Century: Expanding Capacity to Manage Global Complexity

Jaques & Cason produced a chart that they hoped would "… *turn out to be a useful first approximation to the patterns of mental complexity throughout life.*[25] *"*

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24   Elliott Jaques and Kathryn Cason, *op. cit*. p. 88.
25   *Ibid*. pp. 96, 97.

Exhibit 4-3 uses that chart to suggest the developmental patterns for a life expectancy of 100, adding 30 years to the curves in Exhibit 4-1. Ted Rogers' life ended in his mid seventies, in Stratum VII. If he had been able to enjoy the benefits of longevity likely for the Millennial Generation, Ted would have spent the last 10 or 15 years of his extended lifetime in Stratum VIII, where he would have been capable of conceiving, organizing and managing events in a 50 to 100 year time frame.

Exhibit 4-3 provides estimates of the change in approximate numbers of people in the population, per million, at various Stratum V and higher levels. Overall we might expect a 251% increase in this relatively rare and critical leadership capability resulting from increased longevity.

Significantly, these figures suggest that the number of people capable of operating at 5th order of complexity, working with universals, and dealing in time spans of more than 100 years, will expand by a factor of 30 times. This bodes well for the prospects of human society.

21st Century: Expanding Capacity for Implementation

But what of the rest of the working population?

Jaques thought that the 80% of the population making up Stratum I and Stratum II have limited upside developmental capability. There is reason to believe he may have got that wrong.

James R. Flynn has demonstrated that tested IQ's have risen by 3% per decade over the twentieth century. This has become known as the Flynn effect. This does not mean that the population is wildly more intelligent than it was a hundred years ago. Speaking to Trinity College in 2006, he said:

> *"Our ancestors in 1900 were not mentally retarded. Their intelligence was anchored in everyday reality. We differ from them in that we can use abstractions and logic and the hypothetical to attack the formal problems that arise when science liberates thought from concrete referents. Since 1950, we have become more ingenious in going beyond previously learned rules to solve problems on the spot.[26] "*

Exploring the gains between 1960 and 2010, Flynn notes:

> *"…that the gains paid off in the real world of occupational performance. Doctors and managers and bankers and lecturers and technicians can spot the people who did those jobs 50 years ago 15 IQ points and still do the jobs.[27] "*

The changes seen in IQ test scores reflect an improved capability to handle complexity, which is exactly what is measured by a shift from one Stratum to the next higher one.

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26   James. R. Flynn, "Beyond the Flynn Effect: A solution to all outstanding problems-except enhancing wisdom", Annual Psychometrics Centre Public Lecture, Trinity College, Cambridge, 2006, http://www.psychometrics.cam.ac.uk/page/67/jim-flynn.htm

27   James R. Flynn, *Intelligence and Human Progress: the Story of What was Hidden in our Genes*, Oxford, Ensevier, 2013.

Exhibit 4-4 The Flynn Effect: More Senior Managers and Professionals to Get Things Done

The Flynn Effect*
Rough Estimate of Size of Population Strata I to V
Levels of Capability

Typical Role	Type of Work Processing	Description of Level	Approximate Numbers in population per million 1975	Approximate Numbers in population per million 2025	Change
CEO+	Declarative+	Stratum V+	6,600	16,600	152%
General Manager	Parallel	Stratum IV	10,000	70,000	600%
Middle Manager	Serial	Stratum III	70,000	400,000	471%
Front Line Manager	Cumulative	Stratum II	400,000	400,000	0%
Front Line Worker	Declarative	Stratum I	400,000	80,000	-80%

* James R. Flynn has demonstrated that tested IQ's have risen by 3% per decade over the twentieth century. This has become known as the Flynn effect.

Elliott Jaques' work was focused in industrial settings from the mid twentieth century onward, it seems probable that there has been a similar upward shift in capacity to handle complexity, reflecting the same dynamics that gave rise to the inflation of IQ scores. Flynn points to a shift of one standard deviation in the bell curve describing IQ. A similar shift in capacity to handle complexity would suggest the change in the distribution of people in a Western workforce in Exhibit 4-4.

James R Flynn and William Dickens of the Brookings Institution have explored how these gains have come about, in terms of feedback loops in the developmental process.

The Dickens/Flynn model posits two such loops.

Exhibit 4-5: Concentration of the Creative Class –
Where They Work in Toronto

Map by Zara Matheson, Martin Prosperity Institute
Data Source: Statistics Canada
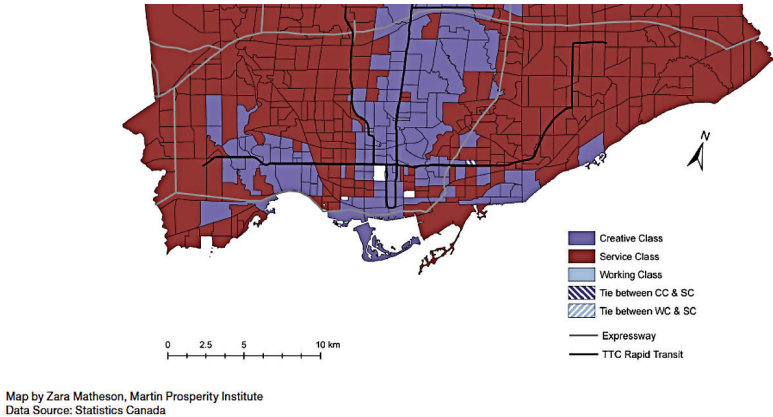
Creative class: artists, doctors, teachers, managers, architects, computer programmers.
Service class: cashiers, salespeople, police officers, food preparers, medical assistants, administrative assistants.
Working class: miners, welders, carpenters, truck drivers, production workers, construction workers.

The "individual multiplier" where;

> "…genes have profited from seizing control of a powerful instrument that multiplies causal potency, namely feedback loops that operate between performance and its environment. A gene-caused performance advantage causes a more-homework-done environment, the latter magnifies the academic performance advantage, which upgrades the environment further by entry in to a top stream, which magnifies the performance advantage once again, which gets access to a good university environment.[28]"

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28   James R. Flynn, *What is Intelligence?* Cambridge, Cambridge University Press, 2009.

And a "social multiplier", where;

> *"The industrial revolution is both the child of the scientific revolution and the parent of the spread of the scientific worldview. It has changed every aspect of our lives. It demands and rewards additional years of education. When a grade-school education became the norm, everyone with middle-class aspirations wanted a high school diploma. When their efforts made a high-school diploma the norm, everyone began to want a B.A. Economic progress creates new expectations about parents stimulating children, highly paid professional jobs in which we are expected to think for ourselves, more cognitively demanding leisure activities. No one wants to seem deficient as a parent, unsuited for promotion, boring as a companion. Everyone responds to the new Milieu by enhancing their performance, which pushes the average higher, so they respond to that new average, which pushes the average skill higher still. You get a huge escalation of cognitive skills in a single generation.[29]"*

At an organizational or social level, Dickens/Flynn multiplier concepts may also be important strategically. Richard Florida has written extensively about the "creative class", and how it comes to be concentrated in key cities, like New York, Toronto, Chicago, Los Angeles and in geographic centres like Raleigh and the Bay Area.[30] Within

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29 *Ibid*. In Elliott Jaques view the developmental curves are genetic and that skilled knowledge and experience can help realize their potential, but not alter the upper limits of a person's trajectory. The argument presented here is different.

30 Richard Florida, *Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life*, Basic Books, 2004.

these centres, the place of work of the creative class is further concentrated, as the Toronto map in Exhibit 4-5 suggests. Thinking in terms of the Dickens/Flynn social multiplier, it may be that these concentrations further enhance the innovative capacity of the society.

The pattern in Exhibit 4-4 is helpful in understanding current phenomena in the workforce. In Canada in 2016 there was a shortage of skilled workers in trades that traditionally fill Stratum I roles, such as construction workers, welders, millwrights, and plumbers. At the same time there are college and university educated people who are likely capable at Stratum II, working as Baristas at Starbucks. This is seen as a mismatch between the education system and the contemporary workforce. But this is not only a mismatch in skills, it is a mismatch in capability to handle complexity. There are simply more people available at Stratum II and III than there are roles available in the workforce. There is a clear opportunity here for organizations to upshift their front-line work to Stratum II, and their Stratum II work to Stratum III, and thereby gain a competitive advantage. The shift of the population to Stratum II and III, as well as from III to IV, will accelerate in the years ahead as individuals develop as they grow and mature. What is now a mismatch, has the makings of a real change in capacity to get things done and implemented. This is a big opportunity to make talent strategy the driver of corporate strategy.

The lions share of the growth in Stratum V will be made up of people who have risen to accomplishment in general management roles in their fifties and sixties and who will transition into a capability to build and lead a substantial enterprise as a Stratum V CEO or equivalent. Their places will be taken by high Stratum III middle managers who will develop the capability to fill the general management role, develop the systems thinking that allows them to trade off the various functional strands, or excel at innovation in senior professional roles.

This upshift in capability lies behind the currently popular shift away from hierarchy in many modern companies, especially in Silicon Valley. Older managerial levels are being compressed by younger people with higher potential capability. The popular *Dilbert* cartoon where management is lampooned by the people who get the work done is another manifestation of the same thing. These modern companies find lack of an accountable management structure leads to chaos, and struggle to find the right balance. The answer lies in getting the work done at the right level, by expanding the professional roles so that they accommodate the need for Stratum III capable people to handle greater complexity, with the longer time span of discretion implied. In addition, it lies in ensuring their accountable managers are capable at Stratum IV, and can truly add value for them.

Getting this balance right can lead to vastly improved effectiveness.

Greenspan's Pessimism is Wrong

Alan Greenspan, looking ahead to prospects for US economic growth, laments the very low savings rate in that country. Noting the importance of productivity in economic growth and well being in society, he looks to prospects for technology or innovation to take up the slack and asserts;

> *"Certainly there is nothing to demonstrate a major difference during the past two millennia in the degree of intelligence of, for example, Euclid, Newton and Einstein, the icons of outer-edge human intelligence of their respective eras. Technology may accumulate, but given the apparent ceiling to intelligence, the pace of knowledge accumulation, of necessity, is limited.[31]"*

Greenspan is pessimistic, but his analysis will likely in the future look like latter-day Malthusian thinking. Once again, it is in the assumptions, that because the Einstein icons don't get smarter, the population as whole also does not get smarter. He has his finger on a more fundamental insight in his footnote to the above passage where he notes, "*The process of human adjustment to the real world may make it appear that, as a species, we are getting smarter. But that may reflect that the world in which we live is becoming more complex.*" Yes, and more modern assumptions about the ability to handle complexity and how that is changing suggest that the US society does and will have the capacity to solve the productivity dilemma going forward and at a socially strategic level. This is true at both the elite leadership end where innovation is propelled,

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31   Alan Greenspan, *The Map and the Territory: Risk, Human Nature, and the Future of Forecasting*, Penguin Press, New York, 2013.

and for the mass of society where innovation is articulated and implemented.

Strategic Implications of the Talent Upside

So What?

When thinking about the strategic impact of these patterns on companies, governments and other social institutions, they need to be seen in the context of other changes taking place in Western society. Here are several lines of thought that may shape strategic thinking.

Embrace Demographic Changes

Exhibit 4-6 shows the population profile for Canada as it changed over a half century, courtesy of Toronto demographer David Foot.[32] What used to be a pyramid no longer is. This pattern is similar in the United States and other Commonwealth countries. Clearly, the work force is becoming different in very fundamental ways. At minimum, retirement age needs to fade away for most occupations. For people in occupations requiring physical vigor, late stage careers will open up that build on skilled knowledge and experience. A declining Stratum I population will open up opportunities for currently marginalized groups, such as First Nations peoples and immigrants having difficulty assimilating. Skills training will be key. Immigration policies need to focus more on skilled trades.

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32   www.footwork.com/pyramids.asp

Exhibit 4-6 Changes in Population Demographics, Canada 1971-2021
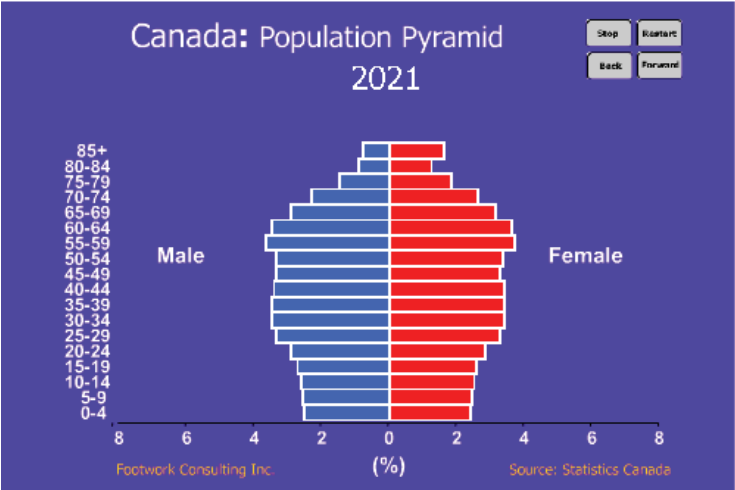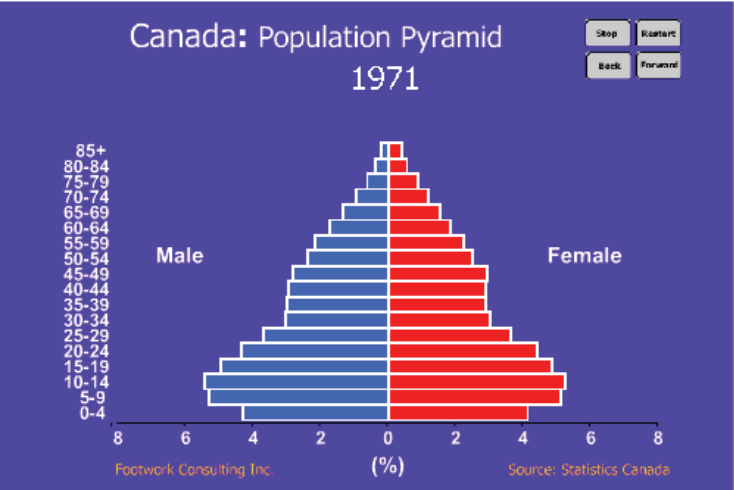
Look to Smart People to Innovate with New Tools

This predictability of demographics needs to be contrasted with the potential for very rapid technological change and innovation that is inherent in MIT's Erik Brynjolfsson and Andrew McAfee *The Second Machine Age,*[33] which describes the exponential impact of Moore's Law. Moore's Law, which accurately predicted the doubling of the number of transistors on a computer chip every two years, is an exponential process. Brynjolfsson and McAffee show that exponential processes are very difficult for people to grasp, as plots of them seem to climb vertically in an incomprehensible way. They plot these patterns on logarithmic scales to make them visible, but maybe no more comprehensible. Exhibit 4-7 suggests some of the underlying patterns, which show both increasing complexity and the technological capacity to handle it. What is happening here is both dramatic and with unpredictable impact, but it does suggest that growing capacity to handle complexity, as a result of both more smarter 75 year olds and a smarter labor force throughout, will be enabled and leveraged by a rapidly evolving digital capacity.

Get More Education

There is strong evidence supporting the economic benefit of more education, for both individuals and the society. Brynjolfsson and McAfee show the financial payoff to

33   Erik Brynjolffsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, Norton, New York, 2014.

Exhibit 4-7 Geometrically Expanding Technology
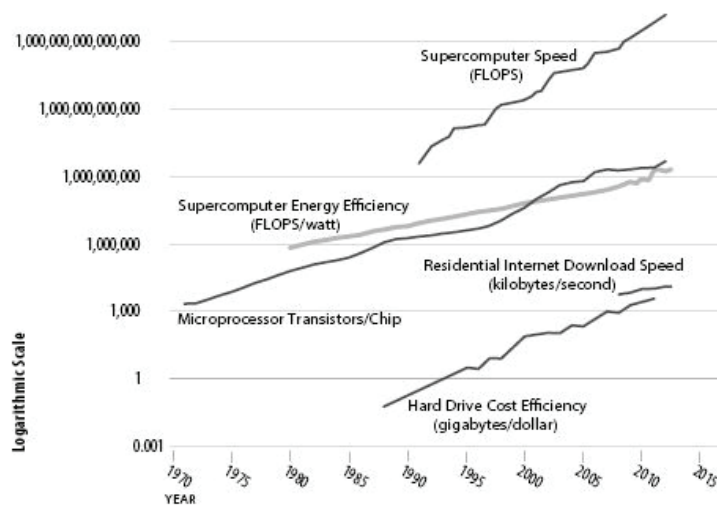
Exhibit 4-8 Education Pays Off
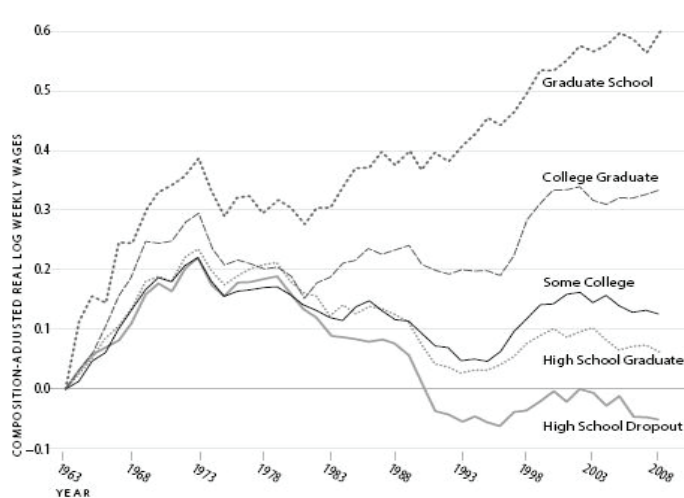
higher education in Exhibit 4-8. There are two reasons why more college and graduate education are important for the future. The first is that such education provides the basis for the skilled knowledge that can assure that the greater potential to handle complexity in the population is realized. The second reason lies in the "social multiplier" proposed in the Dickens/Flynn model, where the capability to handle complexity is enhanced by interaction with peers.

Understand Levels of Complexity in Work

The modern organization needs be more intentional in identifying the complexity required in its various roles. There is a clear approach to doing this, pioneered by Elliott Jaques in the 20th century, and articulated by modern authors such Tom Foster in his *Hiring Talent: Decoding Levels of Work in the Behavioral Interview.*[34]

Understand the Distribution of Capability in the Population

Society would do well to assess the population on the same basis, so that the proportions of the various strata in the general population estimated by Jaques in the 20th century, as suggested in Exhibit 4-2, are brought up to date for the next quarter century. Our colleague, Herb Koplowitz, suggests that a random sample of perhaps 5,000 people would be adequate to do this. It could be done by telephone.

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34   Tom Foster, *Hiring Talent: Decoding Levels of Work in the Behavioral Interview*, 2013.

Get the Old Timers On-side Before They Get You

Jim Collinson, a colleague of ours, has been supporting a group in Manitoba who have been challenging that province's strategy in building some $25 billion in electrical generating stations and power lines. The group includes a retired Dean of Engineering, former vice presidents of Manitoba Hydro, a former president of the utility, and several others, all in their 70's, 80's and 90's. He writes;

> *"My observation is that the older gang is spending up to 16 hours a day working on very high level stuff, and without their effort the Manitoba public would not be exposed to a variety of options that are making Manitoba Hydro squirm. This is in large part due to the complexity and scope of the work the group has undertaken.*[35]*"*

The lesson: get this capacity working with you rather than against you.

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35   See for example: Jim Collinson, *Agricultural Impacts Alone Justify Scrapping Bi-Pole III Route*. new-management-network.com, publications.

Chapter 5

WHAT DID WE LEARN?

We trust this book shows that it is possible and desirable to build intelligent, adaptable organizations for the digital age. This can be done if:

- Employers recognize the central importance of development to the realization of potential in smart creatives.

- Talent management systems ensure that development enhances skilled knowledge and experience, maturity and awareness.

- Managers learn to recognize differing mode paths among recruits and employees.

- Organizations tailor developmental programs to the differing needs of mode paths reflecting differing potential.

- Organization design recognizes the sharply increased ability to handle complexity in middle

management and professional ranks, and that these changes foster flatter and more flexible organizations, and ensure that managers work at the right level to add value.

- Society taps the expanding capability of old-timers.

The challenges of the 21st century require a 21st century approach to management. We hope this book will be helpful to you in building and maintaining an effective organization. We welcome your thoughts and questions.

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Don and Bonnie Fowke are seasoned management consultants. They focus on excellent organization which aligns people with strategy. They serve executives across a broad range of industries. Their deep experience builds on Don's education in industrial management at MIT's Sloan School of Management and Bonnie's education at the Gestalt Institute of Cleveland. They practice as members of the New Management Network and live in Toronto.